PARENTING TECHNIQUES AND PARENT CHARACTERISTICS ASSOCIATED WITH CHILD EXTERNALIZING BEHAVIOR PROBLEMS

A Dissertation

by

BETH HACKETHORN GARLAND

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2007

Major Subject: Psychology

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ABSTRACT

Parenting Techniques and Parent Characteristics Associated

with Child Externalizing Behavior Problems. (May 2007)

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Child behavior problems are commonly reported difficulties within the education community and one of the largest referral reasons for parents seeking therapeutic services for their child. These behaviors can escalate to deviant and harmful behaviors that affect a child's home life, academic success, and relations with family and peers. Current research has identified several parenting variables related to child behavior problems. This study considered the partial mediating role of parenting techniques on the relation between maternal characteristics and child behavior problems as reported by the parents and teachers of Head Start children. Participants in the study were 161 parents with children enrolled in Head Start at one of three programs in Texas or Mississippi.

Results suggested that inconsistent discipline partially mediates the relation between maternal distress and parent reported child hyperactivity and aggression. Inconsistent discipline partially mediates the relation between maternal stress and parent-reported child hyperactivity and aggression. Parental involvement was found to be significantly related to childhood attention problems above and beyond maternal distress or stress and relevant demographic characteristics; however, it did not partially

mediate those relations. Analyses involving teacher reported child behaviors did not show the same mediational effects. SEM analyses indicated that overall models of partial mediation demonstrated good fit. A major advantage to this study is the collection of data at three Head Start programs in two states that service small city / rural populations, an often underrepresented sample in empirical research. Implications of this project include: (a) a better understanding of the maternal variables most influential on child behavior that can be used to enhance curricula for parent training; (b) more precise screening of at-risk families by professionals that will continue to promote a focus on the whole family and allow for multiple pathways of healthy development for the child (e.g., through direct work with child and through the parents); and (c) continued consideration of the importance of ethnicity on these relations that will continue to foster a respectful and informed therapeutic relationship between professionals and families of young, at-risk children.

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INTRODUCTION

Childhood problem behaviors, often referred to as externalizing, have been broadly defined as acting out behavior or behavior that is disruptive, defiant, or difficult (Barkley, 1997; Hinshaw & Lee, 2003). Externalizing behaviors can encompass not only disruptive, defiant, or aggressive behavior, but can also include inattention, hyperactivity, and impulsivity (Hinshaw & Lee, 2003).

Early childhood problem behavior is related to the later development of more serious psychopathology, including such diagnoses as Attention Deficit-Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Antisocial Personality Disorder (ASPD; American Psychiatric Association, 2000; Hinshaw & Lee, 2003). These behavioral disorders progress from deviant and oppositional acts to more serious acts of vandalism, cruelty to people and animals, and a lack of remorse for causing harm to another. The severity of these diagnoses, especially CD and ASPD, are concerning not only for the individual but also for those in the surrounding environment (e.g., other classmates at school) and society as a whole.

Although it is not assumed, nor empirically validated, that young children with behavior problems automatically develop more severe behavior problems, researchers have noted the progression of childhood behavior problems from less severe to more severe in a subgroup of children who display early behavior problems or maladaptive interactions with others (Hinshaw & Lee, 2003; Patterson, Reid, & Dishion, 1992).

This dissertation follows the style of *Journal of Abnormal Psychology*.

Indeed, children who initiate deviant behavior early in life are more likely to display the most persistent, severe, and violent antisocial behavior (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). Early behavioral problems in toddlers and preschoolers, such as impulsivity, hyperactivity, and temper tantrums, may develop into more serious disruptive and aggressive behaviors. Thus, identifying and intervening early in development is vital to improving developmental outcomes for these children.

Prevalence studies have cited between <1% to 20% for ODD, <1% to 10% for CD, and 3% to 7% for ADHD in school-aged children (APA, 2000; Hinshaw & Lee, 2003). Age of onset for ODD is around six years; CD has a typically later onset during middle childhood to middle adolescence, which also provides evidence for a progression of increasing behavior severity (APA, 2000; Loeber, Lahey, & Thomas, 1991). A higher frequency of behavior problems, such as minor physical aggression (e.g., hitting), defiance (e.g., saying "no," refusing to follow directions) and temper tantrums, in preschool children are typical, when compared to older children. However, these behavior problems decline in frequency as children age and as children develop better emotional and behavioral regulation skills that are tied to an increase in language skills and appropriate coping skills. In contrast, beyond the preschool years, a lack of a decline in these behaviors or an increase in these problematic behaviors warrants further assessment and intervention. Extreme behaviors, such as those associated with CD, do not fall within a normal range of behaviors for preschoolers and also warrant clinical concern if present (Hinshaw & Lee, 2003).

One way to intervene in this progression is to determine key variables in the child's life that may reinforce the problem behavior. By knowing and then targeting those variables, practitioners, schools, and families may help curb the progression of the behavior problems before they become too severe. In addition, to help prevent or deter these behavior problems from worsening, it is important to target them early. Early prevention has been shown to have more benefits than targeting adolescents already presenting more severe behavior problems (Dishion & Patterson, 1992; Lochman & Wells, 2003). Thus, identifying important variables in the development of child behavior problems and targeting those variables early is crucial to the long-term development of the child.

Theories of Development of Childhood Problem Behavior

Loeber et al. (1998) considered three broad influences that may explain the emergence of antisocial behavior (e.g., delinquency, ADHD, CD, physical aggression and covert behaviors) across the developmental span. The most immediate influences on child behavior problems are variables associated with the child directly and include lack of guilt, internalizing symptoms, and achievement. The most distal influences are contextual macro-variables, including family SES, demographics, and neighborhood characteristics. In between those two influences are family variables, such as parent characteristics (e.g., stress or distress) and parenting techniques utilized by parents when interacting with or disciplining their children. Each of these three influences (contextual, child, and parent) has been shown to relate to antisocial behavior in different ways across the child's development, and exposure to certain risk factors contributes in part to

increases in severity, frequency, and the diversity of behaviors displayed. The next sections elaborate on two of these influences: macro- or contextual variables and aspects of parenting.

Contextual Variables Associated with Child Behavior Problems

Contextual variables have been shown to be strongly related to behavior problems in children. The most common measures of contextual variables include family income level, parental education, and ethnicity. Typically, a majority of studies conclude that lower SES is associated with higher problem behavior levels (Bolger, Patterson, Thompson, & Kupersmidt, 1995; Barry, Dunlap, Cotten, Lochman, & Wells, 2005; Feldman Hancock, Rielly, Minnes, & Cairns, 2000; McGee & Williams, 1999). Low SES has been linked to poor academic performance and severe disciplinary problems during adolescence (DuBois, Felner, Meares, & Krier, 1994) and higher prevalence rates of ADHD and CD (Pineda et al., 1999; Steiner & Dunne, 1997). In a sequential study spanning three years in elementary and middle school, Bolger et al. (1995) reported that behavior problems such as teacher-reported poor peer relations at school and a student's feelings of low self-concept were related to long-term economic hardship. In addition, over the three years of the study, children with a low SES continued to remain behind academically compared to children who did not have the same level of economic disadvantage. Furthermore, low income or being economically disadvantaged has been shown to contribute to a pattern of coercive learning described by Patterson and colleagues (1992). Other measures of economic disadvantage, such as a family's reliance on welfare, have also been shown to relate to covert misbehavior,

ADHD and CD behaviors, and delinquency (Loeber et al., 1998). Thus, their results indicated that low SES was related to early, disruptive behavior problems, and these problems further influenced children's long-term success at school and future academic endeavors.

In contrast, one study noted a relation between higher SES and higher levels of discipline (Cardona, Nicholson, & Fox, 2000). However, it is not clear that this contradicts previous research linking low SES to more physical punishment. Although the authors provided examples of corporal punishment and yelling in their description of discipline, other forms of discipline may also have been considered. Thus, this study suggests that higher SES is associated with the use of more discipline in general, which is in contrast to the use of less discipline or inconsistent discipline typically found in families with lower SES (McCoy, Frick, Loney, & Ellis, 1999).

Several studies have used or constructed multi-measure reports of SES by combing two or more contextual variables into a composite score. The Hollingshead Index of SES (Hollingshead, 1975), which includes caregiver education and occupation, reliably demonstrates a relation to child behavior problems. In particular, Loeber et al. (1998) reported that low SES, as measured by the Hollingshead Index, was related to the development of delinquent behaviors across early elementary to junior high school, as well as to physical aggression in younger children. An additional multi-measure of family adversity, constructed by Haapasalo and Tremblay (1994), considered parental age at birth, parental education level, parental occupation status, and family constellation during the child's kindergarten year. High family adversity was associated with the

stability and intensity of physical aggression (e.g., fighting) across several early elementary years. McLoyd (1990) and Bronfenbrenner (1986) suggested that SES not only has a direct association with child behavior but also impacts the child via the interactions with parents. Specifically, in a review of literature on African-American children, McLoyd suggested that psychological distress and the marital bond between a couple mediates the relation between low SES and parent behavior directly associated with a child's social and emotional problems. Therefore, low SES has been found to be directly and indirectly related to higher levels of child problem behavior and the use of less effective parenting techniques. Whereas it is not possible to change the SES of families affected by socioeconomic disadvantage, a better understanding of the variables influencing the relation between low SES and child behavior problems can aid schools and agencies that serve economically disadvantaged children and families. Such an understanding could lead to efforts that alter the developmental trajectory of behavior problems and later antisocial behavior in children.

Ethnicity and cultural differences among families have only recently been considered with parenting influences and child problem behavior. These contextual variables are inconsistently linked to potential differences in parenting variables, and only a handful of studies have considered the relation of those differences or similarities on the association with child behavior. One proposed reason for this inconsistency is that previous studies have compared variables between middle income Caucasian families and low income Hispanic or African-American families (Cardona, et al., 2000; MacPhee, Fritz, & Miller-Heyl, 1996; Negy & Woods, 1992a). This difference in SES

level presents a significant confound, given the additional risk factors prevalent in poorer families. For example, relatively higher rates of maternal depression and stress levels have been reported in low SES families and are associated with child behavior problems (Qi & Kaiser, 2003). Therefore, a sample that is generally equivalent in SES will help control for those differences and allow for a clearer picture of ethnicity's role in parenting.

Parenting Variables Associated with Child Behavior Problems

The role of parenting behaviors on the development of serious childhood psychopathology has been theorized to incorporate four stages (Patterson et al., 1992). The social interaction stage model suggests that child behavior is shaped by the social interactions the child experiences with other people (e.g., parents). The first stage, Basic Training, is the most crucial to the current study and occurs during the preschool years. Basic Training sets the initial learning of coercive interactions between others in the child's social environment. Patterson and colleagues further break down this stage into a 4-step learning process of an escape-conditioning sequence, where the future behaviors of parent and child are shaped via "coercive learning." Coercive learning takes place when a child or adult learns, from previous interactions, the behavioral reactions that shape the behavior of another person to their advantage. For example, standing in line at the grocery store checkout, a mother tells her child that she cannot have a candy bar. The child, not getting what she wants, starts to whine and cry. The mother in this position has several options. To prevent a conflict with the child in the grocery line, the mother could give in and allow her daughter to get a piece of candy, which reinforces coercive

learning for the daughter. The mother's behavior reinforces the child's behavior of whining and crying to gain what she wants. The mother's giving in also is reinforced by the cessation of the daughter's tantrum. Alternatively, the mother could hold firm to her stance of no candy, which may increase the child's whining behavior in the short-term. By remaining firm to her stance, the mother will not reinforce the use of the coercive reactions from the child to gain something, which may shape the child's behavior of asking for candy in the future. Behaviors of both individuals in the dyad are altered through this interactional process, and this learning process, due to its daily level of repetition, can become stable by age five or six years.

The remaining stages of Patterson et al.'s (1992) model span development through adulthood and emphasize the detrimental effects of antisocial behavior across multiple settings, such as school, work, and home. As early as elementary school, children with problem behaviors are often labeled as problem children by teachers and are described as attempting to avoid work. These children have difficulty with both academic and social skills, and, as the deviation from typically-developing, same-aged peers widens, the child becomes more demanding, uses more coercive behaviors to avoid work, and is rejected by peers.

As the child ages, associations with deviant peers become an additional source of influence for problematic behavior and reinforce antisocial skills. Continued academic failure and rejection by parents (either direct rejection or indirect through lack of parental monitoring and involvement), as well as rejection by teachers and non-problematic peers, reinforce the child or adolescent to spend more time with deviant

peers. These peers directly reinforce the thoughts and actions of the child while promoting more severe problem behavior, such as substance abuse, continuing truancy, and more serious or dangerous delinquent behaviors. In future occupations, these children demonstrate difficulty with relationships (e.g., unhappy marriages), legal or substance abuse problems, and maintaining employment (Hinshaw & Lee, 2003; Loeber, et al., 1998; Patterson et al., 1992).

Thus, increasing coercive exchanges between parents and children with early disruptive behavior problems can culminate into a pattern of severe and pervasive delinquent behavior as the child ages. It follows that knowing the parenting variables that most contribute to behavior problems in early development will provide practitioners and early educators with a second pathway of intervention for a child. Not only could interventions target the child's behavior in various settings, but parent behavior could also be targeted to equip parents with effective tools for addressing a child's early problematic behavior and preventing it from escalating. The following sections address several of the parenting practices that have been shown to associate with child behavior problems.

Negative Parenting Techniques

Several parenting techniques highly predictive of childhood behavior problems include poor parental monitoring, use of corporal punishment or coercion, and inconsistent discipline. Poor monitoring is typically defined as little or no awareness of the whereabouts of children, in what activities they are engaging, and with whom they spend their time. Several studies have indicated that lack of parental monitoring is

associated with a higher frequency of problem behaviors in children. Griffin, Botvin, Scheier, Diaz, and Miller (2000) reported that higher amounts of parental monitoring were associated with less delinquency and decreased likelihood for later alcohol use in boys. Loeber et al. (1998) reported that poor supervision by parents, as measured by parent and child reports, was also significantly related to higher levels of delinquency, physical aggression, and ADHD and CD across development between the 1st and 7th grade, and it remained a significant predictor for ADHD and CD in 1st grade children even after controlling for child variables. In addition, poor supervision was also significantly related to higher frequencies of covert misbehavior, or behavior that is considered non-criminal, such as manipulation, concealing behaviors, and trustworthiness, during later childhood and early adolescence (4th and 7th grades) remaining significant after controlling for child variables in 7th graders.

In a longitudinal study of childhood to early adolescent aggression, Haapasalo and Tremblay (1994) reported that children labeled as fighters, at least during one period over the course of kindergarten through age 14, had less parental supervision than those children labeled as non-fighters. Haapasalo and Tremblay noted that less parental supervision coupled with more harsh punishment predicted greater risk for later delinquency. One point of inconsistency, however, parents of high fighters, those considered stable in their fighting behavior across time, also demonstrated more supervision as the child's age increased. Haapasalo and Tremblay suggested that this may be a parental reaction to earlier problematic, child behavior such that in response to an increase in problematic behavior, parents increase monitoring behavior. Therefore, a

window of opportunity may exist for parenting techniques to be implemented, maintained, and effective; beyond that point in development, techniques such as parental monitoring are not as effective or taken as seriously by the child. This hypothesis would also lend support to the importance of early identification of effective parenting techniques that establish a pattern of positive interaction, such as that of Patterson et al.'s (1992) social interaction stage model. In general, research suggests that poor parental monitoring has a direct link to increased problem behavior in both children and adolescents, with one explanation that suggests children who know their activities are monitored are less likely to participate in inappropriate activities.

In addition to poor parental monitoring, certain discipline techniques, especially harsh or corporal punishment (e.g., hitting, spanking) and coercion techniques, have demonstrated associations with maladaptive child behaviors. As described above, Patterson et al.'s (1992) first stage in the social interaction stage model, Basic Training, is a time where parental and family influences are most significant, and discipline techniques play a crucial role in the child's learning process. Due to the early presence of stability and routine in child-parent interactional learning, the practice of good parenting techniques very early in a child's development is imperative to establishing appropriate social interactions and communication between the parent and child. For example, in an at-risk sample of 10- to 11-year-old boys, parental monitoring and ineffective discipline accounted for approximately 30% of the variance in child antisocial behavior (Patterson, et al.).

Loeber et al. (1998) also reported the significance of physical punishment, such as slapping or spanking. Based on both parent and child reports, physical punishment was significantly related to more delinquency and physical aggression across the developmental age span, related to more covert misbehaviors during earlier development, and related to higher frequencies of ADHD and CD during later development. Even after controlling for several significant child variables, physical punishment continued to predict older children's delinquency. Across children from multiple ethnic backgrounds between the ages of 4 to 10 years, McLoyd and Smith (2002) reported that increasing levels of spanking and steady high rates of spanking as a discipline technique related to increases in behavior problems. In addition, Stormshak, Bierman, McMahon, Lengua and the Conduct Problems Prevention Research Group (2002) considered more severe, maladaptive parenting techniques of parents with high-risk children in four major US cities. They noted that types of discipline used seemed to be better predictors of aggression, hyperactivity and oppositional behaviors than the consistency of discipline and parental warmth and involvement. Specifically, the use of spanking significantly predicted all three types of behavior problems and was reported to be used more frequently with children who were oppositional or aggressive compared to children who were hyperactive. In addition, severe physical aggression by the parent, defined by throwing objects at the child, hitting the child with objects, direct hitting, pushing, grabbing, or shoving the child, and threatening to do those behaviors, was a significant, unique predictor of child aggressive behaviors. These results suggest that the

use of physical aggression by the parent may become a model for not only the child's immediate behavior but also for the child's potential behavior as a future parent.

In addition, discipline techniques that use maladaptive verbal reasoning with a child have been shown to associate with more behavior problems. Punitive techniques, such as an adult arguing, yelling, using insults, refusing to talk, losing temper, and threatening a child with punishment are related to increases in aggression, hyperactivity and oppositional behaviors in children (Stormshak et al., 2002). In a sample of 2-year-old toddlers, Brook, Zheng, Whiteman, and Brook (2001) reported that control of the child through guilt and coercive control were more strongly, positively correlated with toddler aggression than warm parenting techniques, such as affection, consistency, and satisfaction with child. These studies indicate that physical, coercive, or punitive discipline techniques are strongly, positively related to child behavior problems and may be a stronger predictor than other positive parenting techniques.

Not only the types of discipline techniques used but also the consistency with which they are applied is an empirically supported association with child behavior problems. Early research has shown inconsistent discipline to lead to increased aggression in boys in experimental settings (Deur & Parke, 1970). Furthermore, these aggressive behaviors demonstrated greater resistance to extinction and greater persistence during a subsequent condition of consistent discipline (Deur & Parke, 1970). Recent research has also linked inconsistent discipline to disruptive behavior, attention problems, and conduct problems in children, such as rule-breaking (e.g., Shelton, Frick, & Wootton, 1996; Sutton, Cowen, Crean, & Wyman, 1999; Wootton, Frick, Shelton, &

Silverthorn, 1997; Stanger, Dumenci, Kamon, & Burstein, 2004). During adolescence, parental inconsistency in discipline and monitoring increases the likelihood that teens will gravitate to deviant peer groups, thus leading to increased delinquent behavior (Coie, Terry, Zakriski, & Lochman, 1995; Patterson, et al., 1992). Similar to inconsistent discipline, Patterson and colleagues noted that unclearly defined roles or household rules may lead to more patterns of coercive interactions. Hill, Bush, and Roosa (2003) noted that children's reports of inconsistent discipline were related to conduct problems in an ethnically diverse group of families. Children's reports of inconsistent discipline along with parental acceptance and hostile control were found to mediate the relations between other family variables and conduct problems (Gonzales, Pitts, Hill, & Roosa, 2000). Patterson et al. noted that the techniques most important to establishing a positive parent-child interaction include accurately defining and noting problem behaviors in a child, ignoring coercive acts that are less severe, and consistently using punishment when necessary.

Positive Parenting Techniques

Several parenting techniques highly predictive of fewer child behavior problems include parental involvement and positive parenting. Positive parenting incorporates the use of positive reinforcement techniques, such as praise and rewarding appropriate behavior. Positive parenting, as measured by parent and child reports of reinforcement and positive behaviors toward the child, was significantly related to more reports of ADHD and CD, physical aggression, and covert behavior at the 4th and 7th grades (Loeber et al., 1998). However, inconsistencies have been noted for positive parenting.

After controlling for the covariance between parenting techniques, Stanger, Dumenci, Kamon, and Burstein (2004) found no significant relation between positive parenting and child externalizing behavior. Patterson et al. (1992) addressed several parenting variables labeled as positive parenting techniques, including the use of positive reinforcement, parental involvement, and general support. Results showed that positive reinforcement contributed to a child's behaviors; however the construct explained little variance and was not robust in replication studies. Patterson et al. suggested one potential problem with these findings is that the constructs of positive parenting were not measured adequately.

Parental involvement is defined as knowing and asking about a child's current activities or problems in his/her life, helping with activities or school work, and involving the child in family activities. For example, the degree of a child's involvement in attending and planning family activities is significantly, negatively related to a young child's (1st grade) delinquency (Loeber et al., 1998). Also, this construct often includes parent-child communication. Poor communication, defined by both parent and child reports on the frequency of communication, both direct and indirect, about emotions, problems, and disagreements, was a significant predictor of delinquency, ADHD and CD, and covert misbehavior in older elementary and junior high children (Loeber et al.). However, similar to results discussed regarding parental monitoring by Haapasalo and Tremblay (1994), Griffin, et al. (2000) noted one negative effect between increased communication and delinquency. They offered an alternative explanation of the use of reactive parenting, such that parental communication increases upon observation of

increased delinquent activity in the youth. That is, parents may attempt to request more information from the child if they begin to see problematic behavior.

Parental involvement has also been shown to mediate the relation between economic hardship and childhood externalizing behaviors. Bolger et al. (1995) reported that teacher reported maternal involvement in a child's educational endeavors explained 34% of the variance in behavior problems when entered as a mediator for 2nd through 7th graders. Therefore, children in families with economic disadvantage but with parents possessing strong, adaptive parenting techniques may be less at-risk for displaying behavior problems. Due to the importance of promoting healthy families and early intervention, Head Start focuses on parental involvement both with direct child interaction in the classroom as well as through local policy decisions as members of the Policy Council. One possible benefit to parental involvement in a child's education at Head Start would be the generalizability of that parenting skill to parental involvement at home.

As supported by the empirical findings, parental involvement seems to show a more positive relation with positive child behavior and may also operate as a protective variable against maladaptive behaviors, such as childhood aggression. Significant relations with positive parenting variables have also been reported. However, some speculation as to the measurement validity of positive parenting may provide one explanation for the inconsistent findings.

Association of Parenting Characteristics and Behavior Problems in Children

In addition to parenting techniques, several parenting characteristics have shown a direct association with child behavior problems. Although parenting characteristics as comprehensive as parenting efficacy, satisfaction with parenting, marital discord, and paternal aggression and antisocial traits have been examined, this proposal will focus on the two parent characteristics that involve an individual parent (i.e., as opposed to a parental dyad) and characteristics that are most amendable to potential intervention: (a) parental distress, including anxiety and depression, and (b) parenting stress.

Parental Anxiety and Depression

Loeber et al. (1998) reported that previous or current history of parental anxiety or depression was significantly related to children's ADHD and CD behavior and significantly, positively associated with elementary school children's delinquency, physical aggression and very early displays of covert misbehavior. In a study of children's coping with the stressors associated with parents with Major Depressive Disorder (MDD) or Dysthymia, Langrock, Compas, Keller, Merchant, and Copeland (2002) concluded that these children demonstrate higher levels of aggression. This association with child externalizing behaviors has also been found for maternal depression in adolescent mothers both for infant to 2-year-old children (Leadbeater & Bishop, 1994) and for 4- to 5-year-old children (Black, Papas, Hussey, Dubowitz, Kotch, & Starr, 2002). Other studies have shown that higher levels of depression in mothers are associated with more externalizing symptomatology in children, such as attention problems, hyperactivity, defiance, aggression, and delinquency (Spieker, Larson, Lewis,

Keller, & Gilchrist, 1999). Previous research also indicates that the effect of maternal depression on child problems is not accounted for by general stress levels or low SES (Barry et al., 2005; Cicchetti, Rogosch, & Toth, 1998).

As with maternal depression, research indicates that anxious mothers tend to report higher levels of disruptive behavior problems in their children, when compared to non-anxious mothers (Najman et al., 2000). Furthermore, anxiety in mothers predicts later development of child disruptive behaviors (Spieker et al., 1999). Anxiety in mothers has been associated with unique variance in externalizing symptomatology in children, even after controlling for maternal depression (Briggs-Gowan, Carter, & Schwab-Stone, 1996).

Parental Stress

Research clearly demonstrates that maternal stress is linked to child behavior problems (e.g., Barry et al., 2005; Feldman et al., 2000; McGee & Williams, 1999; Qi & Kaiser, 2003). In general, mothers who self-report higher levels of stress also report more externalizing behaviors in their children (Feldman et al.; Qi & Kaiser). Loeber and colleagues (1998) found that high maternal stress was associated with more delinquency, attention problems, aggression, and early covert misbehavior in samples of children within elementary to middle school grades. Stressors include those considered significant (e.g., marital conflict, employment difficulties, loss of a partner), as well as minor hassles and stresses of parenting (e.g., not enough time for household responsibilities, difficulty finding babysitters, no time for self), which may negatively impact mothers' interactions with their children and lead to less parental support and

involvement (Najman et al., 2000; Pett, Vaughan-Cole, Wampold, 1994). Studies have shown that parenting stress is a significant, unique predictor of child externalizing behavior problems, even after controlling for SES (Barry, et al., 2005).

Parenting Techniques as Mediator

In addition to the importance of these three parent characteristics, a few studies have considered the mediating role of parenting techniques with several parent characteristics. For example, a preliminary study concluded that after controlling for income level and recent stressful life events, negative parenting (i.e., inconsistent discipline, poor monitoring, corporal punishment, low rates of positive parenting, and low parental involvement) partially mediated the relation between maternal anxiety/somatization and depression and a child's hyperactive, aggressive behaviors and conduct problems (Garland, Barry, Dunlap, & Goss, 2005). Patterson et al., (1992) also reported an indirect association between parental discipline and child antisocial behavior by way of parental monitoring. In this particular case, one parenting technique mediated the effect of another technique. Finally, Barry and colleagues (under review) demonstrated that maternal anxiety and depression predicted child aggression, when controlling for parenting stress and SES, and this relation was partially mediated by parents' inconsistent use of discipline .

To continue the understanding of the relation between parenting techniques and characteristics, this study proposes a more integrated, mediational model. Previous literature has suggested that both parental stress and distress directly influence a child's behavior. Preliminary research suggests that parenting techniques mediate the relations

among parental characteristics and child behavior. Furthermore, recently, some researchers have argued that studies attempting to identify variables associated with child behavior problems have not taken into account the interaction of those variables and their bearing on child behavior (Qi & Kaiser, 2003). This model suggests that not only are parenting characteristics directly associated with problem behavior, but also a parent's distress (e.g., anxiety, depression) and stress contribute to a parent's effective use of parenting techniques.

Current Study and Hypotheses

This study investigated the role of both positive parenting techniques and negative parenting techniques, as well as the role of female caregiver characteristics (e.g., maternal stress, maternal distress), on early childhood hyperactivity, aggression, and attention problems.

First, it was hypothesized that positive parenting techniques (i.e., positive parenting, parental involvement) would be related to lower levels of childhood aggression, hyperactivity, and inattention. Also, it was hypothesized that negative parenting techniques (i.e., poor parental monitoring, inconsistent discipline, use of corporal punishment) would be related to higher levels of childhood aggression, hyperactivity, and inattention.

Second, it was hypothesized that maternal stress and maternal distress (i.e., anxiety, depression) would be significantly related to childhood aggression, hyperactivity, and inattention. Regression analyses, controlling for contextual variables as needed, were also conducted to answer this question.

Third, in line with previous research, it was hypothesized that parenting techniques would mediate the relation between maternal stress and child aggression, inattention, and hyperactivity for both a maternal caregiver's report of child behavior, as well as a teacher's report of child behavior. In addition, it was hypothesized that parenting techniques would mediate the relation between maternal distress (e.g., anxiety, depression) and the three child behaviors as reported by both the maternal caregiver and the child's teacher.

Fourth, in an approach to gain a more thorough understanding of how parenting variables are related to child behavior, combined models including both maternal stress and distress, as well as parenting techniques were tested in a Structural Equation Modeling framework to consider the direct and indirect effects of these parent variables on the three child behaviors.

Finally, several empirical studies have considered differences in parenting techniques across ethnic groups; however, the findings from these studies have indicated mixed results. Appendix A presents preliminary findings of analyses conducted to determine if parenting techniques differ across ethnicity.

METHOD

Participants

Participants were 161 parents/caregivers of a child enrolled in a Head Start program. Participants were recruited from three Head Start organizations in Bryan, Texas; College Station, Texas; and Hattiesburg Mississippi. The program in Bryan is comprised of six centers and made up 45% of the total participants for this study. The Bryan program is housed in a larger community organization and services families in Bryan as well as towns in a 7-county region such as Brenham, Madisonville, Hearne, and Navasota. The Head Start program in College Station is comprised of between one to three classrooms in every elementary school in the city and is housed by the College Station Independent School District. Sixteen percent of participants were from the College Station Head Start. Participants from Hattiesburg were recruited from a Head Start program, separate from school districts or larger community organizations. This Head Start program services families in the city of Hattiesburg, as well as surrounding counties of Forrest and Lamar. Thirty-nine percent of participants were recruited from the Hattiesburg area Head Start centers. Data for the total number of children served and the percentage of parent-reported ethnicity of the child were collected from each program. Of the total possible participation in the Texas Head Start centers (n = 778), 12.0% of female caregivers completed the questionnaires. Of the total possible participation in the Mississippi Head Start centers (n = 660), 8.9% of female caregivers completed the questionnaires.

Due to the current theoretical and previous empirical findings, male caregivers were removed from this study's analysis since different parental characteristics have been shown to be related to child behavior problems and because there were so few male caregiver participants. This resulted in the loss of two participants. In addition, participants who returned a packet with at least one completely blank measure relevant to this study's analyses were removed. For analyses involving parent-reported child behaviors, six participants were removed from the analyses due to at least one blank measure returned. For those analyses, involving teacher-reported child behaviors, 12 participants were removed from the analyses due to returned, blank measures. These eliminations left a total of 153 participants for analyses involving parent-reported child behaviors, and a total of 147 participants for analyses involving the teacher-reported child behaviors. The remainder of this paper will address these two groups as two different samples. One sample, the parent-reported child behavior sample, incorporates data collected solely from the maternal caregivers. The second sample, the teacher-reported child behavior sample, includes the teacher-reported child behaviors and the parent-reported parenting techniques, parental distress, and parental stress. In subsequent results, numerical reports/equations were abbreviated "PR" for the parent-reported child behavior sample or "TR" for the teacher-reported child behavior sample.

Due to the differences in sample size because of missing data (as noted above), separate demographic statistics were calculated for analyses involving parent-reported behaviors and analyses involving teacher-reported behaviors. Refer to Table 1 for relevant demographics for the total parent-report sample as well as a breakdown of that

demographic information for participants from Texas Head Start centers (n = 94) and participants from Mississippi Head Start centers (n = 59). For the parent-reported child behavior sample, 89.5% of participants were mothers, 8.5% were grandmothers, and 2.0% were other female caregivers (e.g., child's aunt). Of the children in this sample, 43.8% were female. Of the children in this sample, 19.6% were parent-reported Caucasian, 18.3% Hispanic/Latino, 55.6% African American, and 5.9% "Other," which typically included Asian, Asian-American, and children from parent-reported biracial backgrounds.

Table 1
Demographic Information for Parent-reported Child Behavior Sample

Demographic Categories	Total PR sample	Mississippi sample	Texas Sample
Percentage of mothers	89.5%	86.4%	91.5%
Mother's highest level of education			
Less than HS graduation	0.7%	0%	1.1%
Completed middle school	2.6%	0%	4.3%
Partial high school	16.3%	16.9%	16.0%
HS Graduate	30.1%	23.7%	34.0%
Vocational Training	5.2%	3.4%	6.4%
Partial college	28.8%	39.0%	22.3%
College Graduate	9.2%	10.2%	8.5%
Graduate Degree earned	5.2%	5.1%	5.3%
Percentage of female children	43.8%	42.4%	44.7%
Ethnicity of child			
African American	55.6%	76.3%	42.6%
Hispanic/Latino	18.3%	0%	29.8%
Caucasian	19.6%	20.3%	29.8%
Other	5.9%	1.7%	8.5%
Mean number of people living in house	4.2 people	3.9 people	4.4 people
Median Income Range	$10,000-14,999	$10,000-14,999	$10,000-14,999

For analyses involving the teacher-reported child behavior sample, 89.1% of participants were mothers, 8.8 were grandmothers, and 2.0% were other female caregivers. Of the children in this sample, 42.9% were female. Of the children in this sample 19.7% were parent-reported Caucasian, 19.0% Hispanic/Latino, 54.4% African American, and 6.1% "Other." Table 2 includes relevant demographic information for participants from Texas Head Start centers (n = 91) and participants from Mississippi Head Start centers (n = 56) in the teacher-reported sample.

Table 2
Demographic Information for Teacher-reported Child Behavior Sample

Demographic Categories	Total TR sample	Mississippi sample	Texas sample
Percentage of mothers	89.1%	85.7%	91.2%
Mother's highest level of education			
Less than HS graduation	0.7%	0%	1.1%
Completed middle school	2.7%	0%	4.4%
Partial high school	16.3%	17.9%	15.4%
HS Graduate	29.3%	23.2%	33.0%
Vocational Training	5.4%	3.6%	6.6%
Partial college	29.3%	39.3%	23.1%
College Graduate	9.5%	10.7%	8.8%
Graduate Degree earned	4.8%	3.6%	5.5%
Percentage of female children	42.9%	41.1%	44.0%
Ethnicity of child			
African American	54.4%	75%	41.8%
Hispanic/Latino	19.0%	0%	30.8%
Caucasian	19.7%	21.4%	18.7%
Other	6.1%	1.8%	8.8%
Mean number of people living in house	4.2 people	3.9 people	4.4 people
Median Income Range	$10,000-14,999	$10,000-14,999	$10,000-14,999

Measures

Demographic Questionnaire

As shown in Appendix B, the demographic questionnaire inquires about socioeconomic and socio-cultural information about the family. This questionnaire addressed basic information about the caregiver(s), including age, gender, educational attainment, ethnicity, primary language spoken, employment status as well as household income. In addition, the demographic questionnaire asked information about the child, including birth date, gender, and ethnicity.

Alabama Parenting Questionnaire (APQ)

The APQ (Frick, 1991; Shelton, Frick, & Wootton, 1996) is a 42-item measure that requires caregivers to respond on a 5-point Likert scale ranging from 1 (Never) to 5 (Always), about the frequency of use of various parenting techniques. The measure yields five parenting scales, all shown to be important variables in child outcomes: Parental Involvement, Positive Parenting, Poor Parental Monitoring, Inconsistent Discipline, and Corporal Punishment. See Appendix C for the specific items in this measure. The APQ has demonstrated good construct validity (Shelton et al., 1996). It has also been found to be reliable, with adequate internal consistency (alphas ranging from .67 to .80, except Corporal Punishment, .46) and adequate test-retest reliability (ranging from .66 to .89; Shelton et al., 1996). The Spanish version of the APQ also has demonstrated appropriate psychometric properties. (Davis, & Domenech Rodríguez, 2005; Domenech Rodríguez, Davis, & Villatoro, 2005; M. Domenech Rodríguez, personal communication, June 6, 2005).

Due to the small sample size and the recommendation of 10 participants per parameter estimated (Kline, 1998), SEM analyses were run examining the mediating role of two parenting technique composites. The Positive Parenting Composite combined the techniques of positive parenting and parental involvement from the APQ. The Negative Parenting Composite combined the APQ scales of corporal punishment, poor parental monitoring, and inconsistent discipline. Reliabilities from the current study for these two composites calculated from the combined set of items for these scales indicated a Cronbach's alpha of .80 for the Positive Parenting Composite and a Cronbach's alpha of .70 for the Negative Parenting Composite.

Parenting Stress Index (PSI)

The PSI (Abidin, 1995) is a 120-item self-report questionnaire on the current level of stress within the family and between the parent and child. Three broad scales are yielded from this measure: Child Domain, Parent Domain, and Total Stress Score. In addition, six subscales compose the Child Domain, relating to various facets of the child that a parent may perceive as likely to make parenting difficult (e.g., demandingness of the child), and seven subscales compose the Parent Domain, which are stressors in the caregiver's life that might impede parenting. The Parent Domain is a composite of seven scales: Competence, Isolation, Attachment, Health, Role Restriction, Depression, and Spouse. The final scale measures major stressors faced by the family in the past 12 months, for example, death of a close friend/family member, loss of a job, moved to a new location. For the purpose of these analyses, the Parent Domain scale is used as a measure of stress in the family because it incorporates both individual stress (e.g.,

Health), as well as parenting-specific stress (e.g., Competence). This measure has shown excellent internal consistency (.90 - .95), and moderate to excellent test-retest reliability (.63 - .96). The translated measure has shown good internal consistencies for all scales for Spanish-speaking populations (.88 - .94).

Brief Symptom Inventory (BSI)

This 53-item self-report scale yields nine scores of adult psychopathology: Somatization, Depression, Anxiety, Obsessive Compulsive, Interpersonal Sensitivity, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. In addition, a Global Severity Index is computed to determine a person's overall level of psychological distress (Derogatis, 1993). For the current study, both raw scores and *T*-scores were considered. *T*-scores for the Anxiety and Depression scales were calculated with gender-specific norms for a non-patient adult population. This measure was written at a 6^{th} grade reading level and also was available in Spanish. The BSI has reported internal consistencies of .85 (Depression) and .81 (Anxiety) on a sample of psychiatric outpatients. The BSI has also demonstrated good reliability in an independent study of psychiatric in- and outpatients. The coefficient alpha was .89 for the Depression scale and .86 for the Anxiety scale (Boulet & Boss, 1991). The BSI is a shortened version of the Symptom Checklist-90-Revised (SCL-90-R) by the same authors. Derogatis (1993) reported high correlations between he clinical scales of the shortened (BSI) and longer versions (SCL-90-R); the correlation was .95 for both the Depression and Anxiety scales.

For the purposes of this study, an Anxiety/Depression composite was created to measure distress of the maternal caregiver. This composite was created due to a high correlation of the raw scores on these two scales, $r = 0.85$ ($p <. 001$). It was determined that creating a composite of these two scales would prevent a problem of multicollinearity in later SEM analyses. Since both scales had equal number of items per scale and no items needed to be reversed scored, the Anxiety/Depression composite was created by summing the participants' responses on all the items in the Anxiety and Depression scales and dividing by the total number of items. The Cronbach's alpha reliability for this composite was 0.92.

Behavior Assessment System for Children – 2 (BASC-2)

The BASC-2 (Reynolds & Kamphaus, 2004) is a measure of the frequency of severity of child behavior problems. Separate forms are provided for teachers and parents to tap into behavior at school and home. The preschool evaluation yields clinical scores of Aggression, Anxiety, Attention Problems, Atypicality, Depression, Hyperactivity, Somatization, and Withdrawal. Also, adaptive scores of Activities of Daily Living (parent only), Adaptability, Functional Communication, and Social Skills are available. The preschool assessment has been normed for children between the ages of two and five years. Analyses for this study considered the clinical scales of Hyperactivity, Aggression, and Attention Problems. Spanish translations of the parent-reported BASC-2 were used when necessary.

Internal consistencies for the general norm sample of the parent form of the BASC-2 ranged from .78 - .87 for the three scales used in analyses for this study. Test-

retest reliabilities for the parent form of the BASC-2 ranged from .70 - .81 for the Hyperactivity, Aggression, and Attention Problem scales. As published by the BASC-2 manual (Reynolds & Kamphaus, 2004), correlations of the BASC-2 preschool forms with another commonly used parent-report measure of child behavior, the Child Behavior Checklist (Achenbach & Rescorla, 2000) showed moderate to high correlations with related scales. The BASC-2 Hyperactive scale correlated .79 with the DSM-oriented scale of ADHD on the Child Behavior Checklist. The BASC-2 Attention Problems scale correlated .59 with the DSM-oriented scale of ADHD and .65 with the Attention Problems scale. The BASC-2 Aggression scale correlated .67 with the Aggressive Behavior scale and .68 with the DSM-oriented scale of Oppositional Defiant Problems (Reynolds & Kamphaus).

Internal consistencies for the general norm sample of the teacher form of the BASC-2 ranged from .88 - .92 for the Hyperactivity, Aggression, and Attention Problem scales, and test-retest reliabilities ranged from .83 - .89. Correlations with Child Behavior Checklist (Achenbach & Rescorla, 2000) showed moderate to high correlations with related scales as well. The BASC-2 Hyperactive scale correlated .81 with the DSM-oriented scale of ADHD from the Child Behavior Checklist. The BASC-2 Attention Problems scale correlated .66 with the DSM-oriented scale of ADHD and .64 with the Attention Problems scale. The BASC-2 Aggression scale correlated .90 with the Aggressive Behavior scale and .84 with the DSM-oriented scale of Oppositional Defiant Problems (Reynolds & Kamphaus, 2004).

Procedure

After gaining IRB approval, informed consents were sent home to each parent whose child was currently enrolled in Head Start. Parents who chose to participate returned the consent form to their child's teacher and were then sent a packet of questionnaires including all of the above mentioned measures. Families were only allowed to participate one time and report on one child, even if more than one child was enrolled in Head Start. This was to ensure that the data remained as independent as possible and not confounded by reports from the same parent on two children. When a family had more than one child enrolled in Head Start, the researcher and research assistants did their best to divide the "shared" families equally among teachers in the centers. Once parent packets were returned, teacher report BASC-2 forms were distributed for teachers to complete on the child's classroom behavior. Teachers only completed teacher report BASC-2 assessments on children whose parents consented to participation.

Parents were also sent a second packet of questionnaires several weeks after completing the first packet. The data from these second packets will not be analyzed for this project. However, for completion of both packets, parents received $15. Parents who only returned the first packet were compensated $10. Teachers were compensated $5 for every form they completed. During and after data collection, proper care was taken to ensure confidentiality and protect participant information.

Design

This study was a survey study with participants drawn from a restricted community sample. The analyses of this study will include simple and multiple regressions to test relations among the variables.

Hypotheses considering mediational relations between a single maternal characteristic predictor and child behaviors were tested using Baron and Kenny's (1986) mediational model. Baron and Kenny (1986) proposed several preliminary steps to determining if a variable is a potential mediator of a relation between two other variables. Baron and Kenny (1986) suggested that to properly test a mediational effect, four findings must be present. First, there must be a significant relation between the independent variable and the outcome variable. These analyses follow Hypothesis 2 of this study. Second, there must be a significant relation between the independent variable and the potential mediator. Third, a significant relation should exist between the mediator and the dependent variable when controlling for the independent variable. The last step, according to Baron and Kenny suggests that one must demonstrate through regression that when controlling for the mediator, the relation between the independent and dependent variables significantly decreases, becoming a non-significant relation.

Structural equation modeling (SEM) was conducted to determine the overall model fit and significant path estimates of mediational models that combined both maternal characteristics (maternal stress and distress) as independent variables and each child behavior as the dependent variable. The models were analyzed using maximum likelihood (ML) estimation technique with Lisrel 8.80 student version. This estimation

technique was appropriate for these data even though the data are not perfectly normal. This method assumes multivariate normality, and this data fall within the suggested cutoff. Both parameter estimates and fit functions from ML estimation are not as influenced by non-normality and model misspecification. Also, this method is scale invariant, meaning that the metric of the variables does not influence the fit of the model nor the parameter estimates.

Model fit was determined based on the following measures. The minimum-fit chi-square and significance test was used to determine if the reproduced model differed statistically from the original model. A *p*-value greater than .05 indicates minimal differences between the original covariance matrix and the reproduced matrix. Other fit indices and the cut-offs used for this study were based on 2-index presentation strategy recommended by Hu and Bentler (1998, 1999). One absolute index, the Standardized Root Mean Square Residuals (SRMR) assessed model fit with regard to simple model misspecification, specifically addressing the structural model misspecification; a value of .08 or lower will determine good model fit. In addition, the Comparative Fit Index (CFI), an incremental fit index, was used to determine complex model misspecification; this index has shown to be robust to smaller sample sizes as well as estimation method. Hu and Bentler recommend a cut-off of .95 or higher. However, since the CFI is a relatively new index, the RMSEA also addressed complex model misspecification; however, this index is not as robust with small sample sizes and tends to not find true models when it should. Hu and Bentler (1998) recommend a cut off of .06 or below.

For these analyses, the data were screened for assumption violation. Data screening for univariate multicollinearity was addressed by looking at the correlation matrix. Variables with correlations above .85 indicate a problem with univariate multicollinearity (Klein, 1998). None of the correlations for these data exceeded .85; see Tables 3 and 4 for the correlation matrix of all relevant variables for parent-report and teacher-report child behavior analyses. Per capital income was also significantly related to the APQ positive parenting composite, $r = .20$, $p < .05$. Multivariate multicollinearity was assessed by looking at the tolerance and VIF for each variable after running three regression analyses, one for each of the models to be analyzed. Tolerance values, which are recommended to be greater than .1 (Klein), ranged between .50 – .93, indicating that there was little multivariate multicollinearity. All the variables in this model appear to be independent without too much overlap between the variables.

Univariate outliers were assessed by a nonparametric approach of assessing the percentiles of the variables instead of the standard deviations, which are influenced by the magnitude of the outliers (S.J. Finney, personal communication, September, 19, 2006). Several univariate outliers were found to be present in the data for the variables of child aggression, child hyperactivity, positive parenting composite, negative parenting composite, Parent Domain of the PSI, and the Anxiety/Depression composite. While there is the option to delete or Winsorize these univariate outliers, this changes the data and potentially decreases the level of generalizability. Therefore, univariate outliers were not removed for these analyses.

Table 3
Correlation Matrix of all Relevant Variables in the Parent-Reported Sample

	Hyper	Agg	Attn Prob	Stress	Anx/Dep	Involve	Positive	Monitor	Corp Pun	Inconsis
Hyper [a]	1.0									
Agg [a]	.69***	1.0								
Attn Prob [a]	.67***	.49***	1.0							
Stress [b]	.36***	.33***	.32***	1.0						
Anx/Dep [c]	.53***	.37***	.43***	.62***	1.0					
Involve [d]	-.16*	-.15	-.30***	-.30***	-.20*	1.0				
Positive [d]	.04	-.04	-.10	-.16*	-.12	.42***	1.0			
Monitor [d]	.16*	.09	.00	.07	.08	-.09	.03	1.0		
Corp Pun [d]	.26**	.22**	.16	.10	.16	.09	.10	.06	1.0	
Inconsis [d]	.39***	.35***	.19*	.31***	.32***	-.13	-.13	.31***	.18*	1.0

[a] Hyper = Hyperactivity; Agg = Aggression; Attn Prob = Attention Problems, as reported from the Behavior Assessment System for Children – Parent Report. [b] Stress = Parent Domain, as reported from the Parenting Stress Index. [c] Anx/Dep = Anxiety/Depression composite, as reported from the Brief Symptom Inventory. [d] Involve = Parental Involvement; Positive = Positive Parenting; Monitor = Poor Parental Monitoring; Corp Pun = Corporal Punishment; Inconsis = Inconsistent Discipline, as reported from the Alabama Parenting Questionnaire.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4
Correlation Matrix of all Relevant Variables in the Teacher-Reported Sample

	Hyper	Agg	Attn Prob	Stress	Anx/Dep	Involve	Positive	Monitor	Corp Pun	Inconsis
Hyper [a]	1.0									
Agg [a]	.88***	1.0								
Attn Prob [a]	.71***	.66***	1.0							
Stress [b]	-.02	-.07	.00	1.0						
Anx/Dep [c]	.13	.10	.19*	.62***	1.0					
Involve [d]	-.09	-.08	-.15	-.31***	-.22**	1.0				
Positive [d]	.12	.05	.10	-.17*	-.11	.45***	1.0			
Monitor [d]	.06	.04	.07	.09	.10	-.11	.03	1.0		
Corp Pun [d]	.06	.08	-.01	.11	.15	.06	.12	.07	1.0	
Inconsis [d]	.10	.11	.10	.31***	.31***	-.16	-.13	.32***	.18*	1.0

[a] Hyper = Hyperactivity; Agg = Aggression; Attn Prob = Attention Problems, as reported from the Behavior Assessment System for Children – Parent Report. [b] Stress = Parent Domain, as reported from the Parenting Stress Index. [c] Anx/Dep = Anxiety/Depression composite, as reported from the Brief Symptom Inventory. [d] Involve = Parental Involvement; Positive = Positive Parenting; Monitor = Poor Parental Monitoring; Corp Pun = Corporal Punishment; Inconsis = Inconsistent Discipline, as reported from the Alabama Parenting Questionnaire.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Multivariate outlier issues were detected by the data screening analysis. Multivariate outliers were assessed by calculating Mahalanobis distances and then screening for a large jump in values for the ten largest reported distances (Klein, 1998). These data showed a large jump (9 - 12 points) in values for two cases. Further inspection of these cases demonstrated that for one case, all three child behavior scales were high (above the univariate outlier cut-off) and the BSI scores were also higher than the univariate outlier cut-off. The other case was only high for the variables of child aggression and the BSI Anxiety/Depression composite score.

Further inspection of the raw data and composite scores for these measures do not suggest that the BSI scores are invalid, according to the Derogatis (1993). In particular, no items were skipped for either of the two participant's protocols. The parent-reported BASC-2 scores did indicate high validity scales for both potential outlier cases, F-scale for both protocols and Inconsistency for one protocol. One reason for an elevated F-scale (Reynolds & Kamphaus, 2004) is a tendency for the reporter to fake bad or make an effort to make their child look more disturbed than s/he actually is. While this hypothesis may be appropriate for these cases because the teacher reports of the child behavior are not congruent with the elevated parent reports, there would be arguably little reason or motivation for a parent to fake bad on this report. This information was not collected as part of a larger clinical intervention, nor did information collected provide their child with additional services at school or in the community. Parents were informed that their child's teacher would not be receiving any information about the forms they filled out; the forms were distributed in a closed

envelope. The parents were also informed and could verify that their personal information (i.e., name) would not be identifiable as it was not marked anywhere on the envelope or assessments. One other reason for an elevated F-scale includes an inability or difficulty with reading. For these two cases, this does not appear to be supported due to consistently reporting other information that was collected across multiple forms (e.g., child's age, birthday, their relation to the child, gender), and the appropriate validity of other measures (e.g., PSI). The Inconsistency scale of one of the two cases was elevated also for the parent-report BASC-2. The Inconsistency scale taps into the possibility of ignoring content when responding to items in the assessment (Reynolds & Kamphaus). While this remains a hypothesis for this protocol, pairs of items used to determine the Inconsistency scale were inspected for those items that loaded on the Aggression, Hyperactivity, and Attention Problems scales. Of the six pairs of items, only two were discrepant at an either one- or two-point difference. While this information does not influence the overall interpretability of the participant's protocol, the items pertaining to the scales relevant to this study appear to be responded to in a consistent manner. Other reasons for inconsistency in a protocol include difficulty reading (as addressed above) and changing one's perspective while filling out the questionnaire (Reynolds & Kamphaus). These two cases were kept in the analyses of this study because the outlying scales are within an acceptable range, albeit high, and there is a lack of highly convincing evidence that the scores were high for any reason outside of the parent reporting from their perceptive on their own personal distress and child's behaviors.

To assess univariate normality, both skew and kurtosis statistics were calculated for each variable. Kline (1998) recommends that the absolute value of skewness for a variable should be less than three and the absolute value of kurtosis should be less than eight. No skew or kurtosis values for any relevant variables for these analyses were above those recommended cut-offs. Multivariate normality was assessed using PRELIS in Lisrel 8.53. While, cutoffs of multivariate kurtosis are not printed, recommendations of values less than 3 - 5 have been suggested (Bentler, 1998). The reported multivariate kurtosis for these data fell between 1.2 - 1.3, falling below the cut-off score.

RESULTS

Data Preparation

Data were checked for accuracy by entering all raw data twice into two separate databases. Syntax was then written to find differences between the same items in both databases. When differences were found, the correct information was found in the participant's packet and corrected in the databases.

After the data were cleaned, Parent BASC-2 forms, Teacher BASC-2 forms, and PSI forms were entered into their respective scoring program to obtain *T*-score values on all composites. Syntax was written to convert BSI and APQ raw scores into their composites based on calculations provided by the measures' manuals. Frequencies were then run on all data to check for out-of-range values; any values out of range were corrected by examining the raw data.

As noted in the Method section, packets with either a male caregiver responder or a completely blank measure were then removed from the data. Frequencies were run a second time to determine the amount of missing data on all measures with these cases removed. For analyses with parent-reported child behavior, missing data deleted listwise would have decreased the available sample size of 153 to 131 cases. For analyses with the teacher-reported child behavior sample, missing data deleted listwise would have decreased the available sample size of 147 to 125 cases. Missing data analyses were also run for each composite and determined that individual composite scores from the measures ranged from no missing data (0%) to 8.5% for parental monitoring on the APQ.

Current research supports several methods for handling missing data. One particular technique, the Estimation Maximization (EM) algorithm is currently recommended because it not only uses a regression based approach to predicting values, as opposed to imputing the mean for missing data, but it also accounts for some residual variability of individual items and variability in the constructed covariance matrices, not accounted for when solely using a regression based method of imputation (Enders, 2001; Enders, 2003; Tabachnick & Fidell, 2001). The EM algorithm creates initial estimates of missing data, given the other observed data and the initially estimated covariance matrix. Through an iterative process, the covariance matrix is recalculated given the new estimates, and new missing data values are predicted. This process continues until a convergence criterion is met (Enders, 2001; Enders, 2003).

Missing data for these analyses were imputed using the Multiple Imputation EM algorithm in Prelis. The EM algorithm was run separately for each measure on item level data, so that predictions were only made for a missing datum based on observed data on that measure and the constructed covariance matrix. After item level data were imputed, composites for all measures were recalculated either by syntax (BSI, APQ) or through the scoring program (Teacher BASC-2, Parent BASC-2, PSI). Final samples sizes were 153 participants for the parent-reported sample and 147 for the teacher-reported sample.

Reliability of All Measures in the Current Sample

Due to differences in missing data, separate reliabilities were calculated for cases included in the parent-reported sample and the teacher-reported sample. Cronbach's alpha coefficients were calculated by SPSS Reliability Analysis.

Parent-reported Child Behavior Sample

Cronbach's alpha coefficients were calculated for each scale for each measure. For the parent-reported BASC-2, Cronbach's alpha values ranged from .82 - .85. For the parent-reported APQ, Cronbach's alpha values ranged from .43 - .75 for the individual scales. Cronbach's alpha for the Parent Domain of the PSI was .91. Cronbach's alpha for the BSI Anxiety/Depression composite was .92. These values did not differ by more than .015 from the reliabilities of the scales without data imputation. See Table 5 for all Cronbach's alphas calculated for these analyses.

Table 5
Cronbach's Alpha Reliabilities for all Measures in Parent- and Teacher-reported Child Behavior Samples

	PR sample [b]	TR sample [c]
Child Hyperactivity (BASC-2)	.85	.91
Child Aggression (BASC-2)	.85	.93
Child Attention Problems (BASC-2)	.82	.92
Parent Domain (PSI) [a]	.91	.91
Maternal Anxiety (BSI) [a]	.85	.85
Maternal Depression (BSI) [a]	.84	.86
Parental Involvement (APQ) [a]	.75	.75
Poor Parental Monitoring (APQ) [a]	.64	.64
Positive Parenting (APQ) [a]	.74	.73
Use of Corporal Punishment (APQ) [a]	.43	.42
Inconsistent Discipline (APQ) [a]	.66	.68

Note: PR = parent-reported child behavior sample, TR = teacher-reported child behavior sample.
[a] These scales are always reported by the maternal caregiver. [b] $n = 153$. [c] $n = 147$.

Teacher-reported Child Behavior Sample

Cronbach's alpha coefficients were also calculated for each scale in the analyses using the teacher-reported child behavior sample. For the teacher-reported BASC-2, Cronbach's alpha values ranged from .91 - .93. For the parent-reported APQ, Cronbach's alpha values ranged from .42 - .75 for the individual scales. Cronbach's alpha for the parent-reported Parent Domain of the PSI was .91. Cronbach's alpha for the parent-reported BSI was .92 for the Anxiety/Depression composite. These values did not differ by more than .016 from the reliabilities of the scales without data imputation. See Table 5 for all Cronbach's alpha values reported by measure and by reporter.

Descriptive Statistics for All Measures

Parent-reported Child Behavior Sample

For child psychopathology, as measured by the BASC-2, a *T*-score of 70 or greater indicates that the reported behavior is at a clinically significant level compared to other children of that age in the general population; *T*-scores of 60-69 are considered "at risk" (Reynolds & Kamphaus, 2004). The mean *T*-scores for parent-reported child behaviors all fell within a normal range of child behavior, based on age-appropriate general norm comparisons: hyperactivity ($M = 53$, $SD = 11.6$), aggression ($M = 52$, $SD = 11.3$), attention problems ($M = 53$, $SD = 9.9$). For parent-reported behavior problems, 6.5% of the children in this sample were reported to have clinically significant levels of hyperactivity, 5.2% with clinically significant levels of aggression, and 4.6% with clinically significant levels of attention problems. Using the "at risk" range of *T*-scores from 60-69, 19.6% of children in this sample were reported by their parents to have "at

risk" levels of hyperactivity, 15.7% aggression, and 20.9% attention problems. Mean *T*-scores for maternal anxiety (*M* = 49, *SD* = 10.5) and maternal depression (*M* = 53, *SD* = 9.1) as measured by the BSI, were within the normal range. Of the parent-reported sample, 5.2% of maternal caregivers reported levels of depression greater than a *T*-score of 70, and 5.9% of participants reported levels of anxiety greater than a *T*-score of 70. The PSI Parent Domain score can range from 69 to 188. The mean raw score for the PSI Parent Domain for this sample was 115 (*SD* = 25.8). This mean raw score is approximately equivalent to the 40th percentile. Raw scores greater than 169 are equivalent to the 95th percentile of the general norm group. In this sample, 3.3% of participants reported raw scores on the Parent Domain score of 169 or higher. The APQ does not have published norms for the five parenting scales. Scores on each of the scales can range from 0 to 5, where higher scores indicate higher frequencies of the reported parenting technique. For this sample, the means for the APQ were 4.0 (*SD* = 0.52, parental involvement), 4.6 (*SD* = 0.43, positive parenting), 2.2 (*SD* = 0.62, inconsistent discipline), 1.5 (*SD* = 0.47, poor parental monitoring), and 1.9 (*SD* = 0.63, use of corporal punishment). In general, the means on the APQ indicate that on average, more parents tended to report a higher frequency of positive parenting techniques (e.g., involvement, positive parenting) and a lower frequency of negative parenting techniques (e.g., poor monitoring, inconsistent discipline, use of corporal punishment). See Table 6 for the descriptive statistics of these measures used in parent-reported child behavior analyses.

Teacher-reported Child Behavior Sample

For child behavior, as measured by the BASC-2, mean *T*-scores for teacher-reported child behaviors also fell within a normal range of child behavior, based on age-appropriate general norm comparisons: hyperactivity ($M = 50$, $SD = 10.1$), aggression ($M = 53$, $SD = 12.4$), attention problems ($M = 49$, $SD = 10.1$). Using the clinical cut-off *T*-score of 70, 6.1% of the children in this sample were reported by their teachers to have clinically significant levels of hyperactivity, 8.8% with clinically significant levels of aggression, and 2.7% with clinically significant levels of attention problems. Using the

Table 6
Descriptive Statistics of the BASC-2, APQ, BSI, and PSI for the Parent-reported Sample

	T-score	Standard Deviation
Parent-reported BASC-2		
Hyperactivity	53	11.6
Aggression	52	11.3
Attention Problems	53	9.9
Brief Symptom Inventory		
Anxiety	49	10.5
Depression	53	9.1
	Raw score [a]	Standard Deviation
Alabama Parenting Questionnaire		
Parental Involvement	4.0	.52
Inconsistent Discipline	2.2	.62
Poor Parental Monitoring	1.5	.47
Corporal Punishment	1.9	.63
Positive Parenting	4.6	.43
Parenting Stress Index		
Parent Domain	115	25.8

[a] Raw scores for the Alabama Parenting Questionnaire scales can range from 1-5. Raw scores for the Parenting Stress Index can range from 69-188; scores above 169 indicate the 95th percentile and higher.

"at risk" range of *T*-scores from 60 to 69, 8.8% of children in this sample were reported by their teachers to have "at risk" levels of hyperactivity, 16.3% aggression, and 16.3% attention problems. Mean *T*-scores on the parent-reported BSI for anxiety (*M* = 48, *SD* = 10.4) and depression (*M* = 53, *SD* = 9.1) were within the normal range. Of the teacher-reported sample, 5.4% of maternal caregivers reported levels of depression equal to or higher than a *T*-score of 70, and 6.1% of participants reported levels of anxiety at a *T*-score of 70 or higher. The mean raw score for the PSI Parent Domain for this sample was equivalent to the 40th percentile (*M* = 114, *SD* = 25.8). In this sample, 3.4% of participants reported raw scores on the Parent Domain score of 169 (95th percentile) or higher. For parenting techniques as reported by the maternal caregiver on the APQ, the means for this sample were 4.0 (*SD* = 0.51, parental involvement), 4.6 (*SD* = 0.44, positive parenting), 2.2 (*SD* = 0.63, inconsistent discipline), 1.5 (*SD* = 0.48, poor parental monitoring), and 1.9 (*SD* = 0.63, use of corporal punishment). The APQ means for this sample are similar in value and trend to those discussed above. See Table 7 for the descriptive statistics of these measures used in teacher-reported child behavior analyses.

Relation of Socioeconomic and Gender Variables on Child Behavior Problems

Previous research has indicated a relation between socioeconomic factors, such as family income and family make-up, with child behavior problems. A composite of per capita income was calculated for each participant by dividing the coded value of a family's income range by the number of people reportedly living in the house. Since family income was reported in ranges of $5,000, the actual value of a participant's

income was unable to be determined. Therefore, no meaningful, average per capita values can be reported. However, regression analyses were run to predict each child behavior, maternal characteristics, and parenting techniques from the per capita calculation. Per capita income was not significantly related to any child behavior or maternal characteristics. However, for the parent-report sample, per capita income was significantly related to parental involvement, $r = .23$, $p < .01$, and to poor parental monitoring, $r = -.23$, $p < .01$. For teacher-reported child behavior, per capita income was

Table 7
Descriptive Statistics of the BASC-2, APQ, BSI, and PSI for the Teacher-reported Sample

	T-score	Standard Deviation
Teacher-reported BASC-2		
Hyperactivity	50	10.1
Aggression	53	12.4
Attention Problems	49	10.1
Brief Symptom Inventory		
Anxiety	48	10.4
Depression	53	9.1
	Raw score [a]	Standard Deviation
Alabama Parenting Questionnaire		
Parental Involvement	4.0	.51
Inconsistent Discipline	2.2	.63
Poor Parental Monitoring	1.5	.48
Corporal Punishment	1.9	.63
Positive Parenting	4.6	.44
Parenting Stress Index		
Parent Domain	114	25.8

[a] Raw scores for the Alabama Parenting Questionnaire scales can range from 1-5. Raw scores for the Parenting Stress Index can range from 69-188; scores above 169 indicate the 95th percentile and higher.

not significantly related to child behaviors or maternal characteristics. However, parental involvement, $r = .23$, $p < .01$, and poor parental monitoring, $r = -.24$, $p < .01$, for the teacher-report sample were significantly related to per capita income. Thus, per capita income was controlled for in analyses that included parental involvement and poor parental monitoring in both the parent-report and teacher-report samples. Per capita income was also not significantly related to the other parenting techniques in either sample.

In addition to considering socioeconomic factors, the gender of the child was also considered, given the previous literature suggesting that prevalence reports of child hyperactivity, aggression, and attention problems differ for male and female children. For the parent-reported sample, gender was significantly related to child attention problems, $r = -0.25$, $p < .01$, indicating that parents reported more child attention problems for male children. The relation between gender and parent-reported child hyperactivity, $r = -0.16$, $p = 0.56$, approached significance. The relation between gender and parent-reported child aggression, $r = -0.06$, n.s., was not significant. For the teacher-reported sample, child attention problems were significantly related to gender, $r = -0.22$, $p < .01$, with teachers reporting more child attention problems for male children than female children. Teacher-reported child aggression, $r = -0.09$, n.s., and child hyperactivity, $r = -0.11$, n.s., were not significantly related to gender. Variables of maternal stress, maternal distress, and all five parenting techniques were not significantly related to child gender. Based on the significant relations, gender was

controlled in subsequent analyses involving parent-reported hyperactivity, parent-reported attention problems, and teacher-reported attention problems.

Relation of Parenting Techniques with Child Behavior Problems

To test Hypothesis 1, six regression analyses were run to determine the relation between all five parenting techniques with each of the three child behaviors as reported by the parent and the teacher. Gender was controlled in analyses with parent-report child hyperactivity and attention problems, as well as for teacher-reported child attention problems. SES was controlled for all analyses because SES was found to relate to parental involvement and poor parental monitoring. The results of these analyses are presented in Tables 8 and 9. For parent-reported child hyperactivity, parenting techniques accounted for 22.1% of the variance in child hyperactivity, overall $R = .50$, $p < .001$, after controlling for child gender and SES. Specifically, parental involvement, $\beta = -.18$, $p < .05$, inconsistent discipline, $\beta = .33$, $p < .001$, and corporal punishment $\beta = .20$, $p < .01$, were significant predictors and in their hypothesized directions. Children displaying more hyperactivity, as reported by their female caregiver, have female caregivers who also use more corporal punishment and inconsistent discipline and are less involved. Parenting techniques were also significantly related to parent-reported child aggression after controlling for SES; overall $R = .41$, $p < .001$. This finding indicates that 16.4% of the variance in child aggression is accounted for by parenting techniques above and beyond a family's SES. In particular, inconsistent discipline, $\beta = .32$, $p < .001$, and corporal punishment, $\beta = .18$, $p < .05$, were significant predictors, such that increased use of corporal punishment and inconsistent discipline was significantly

related to child aggression. Parent-reported child attention problems were also significantly related to parenting techniques, with parenting techniques accounting for 13.0% of the variance in child attention problems, overall $R = .46$, $p < .001$, after controlling for gender and SES. Specifically, parental involvement, $\beta = -.27$, $p < .001$, and corporal punishment, $\beta = .19$, $p < .05$, were significant predictors of child attention problems, such that increased parental involvement and decreased corporal punishment were related to decreased levels of child attention problems. See Table 8.

For teacher-reported child behaviors, the overall regression model for child attention problems was significant, $R_{attention\ problems} = .32$, $p < .05$, when controlling for gender and SES. This finding indicates that 5% of the variance in teacher-reported attention problems is explained by parenting techniques. Specifically, parental involvement was found to be a significant predictor, $\beta = -.20$, $p < .05$, suggesting that higher levels of parental involvement relate to lower levels of attention problems. Overall regression models were not significant for child hyperactivity and aggression, indicating that after controlling for SES, the five parenting techniques did not explain a significant amount of variance in child hyperactivity and aggression, $R_{hyperactivity} = .22$, n.s.; $R_{aggression} = .17$, n.s. See Table 9 for the regression coefficients and Beta weights for each of the relations between parenting techniques and teacher-reported child behaviors.

Table 8
Regression Coefficients and Beta Weights for the Relations Between Individual Parenting Techniques and Parent-reported Hyperactivity, Aggression, and Attention Problems

	Hyperactivity	Aggression	Attention Problems
Step 1			
Overall R coefficient	.16	.06	.29**
Child Gender	-.17*	--	-.27**
SES	-.01	-.06	-.15
Step 2			
Overall R coefficient	.50***	.41***	.46***
Child Gender	-.16*	--	-.25**
SES	.02	-.06	-.13
Parenting Techniques			
Inconsistent Discipline	.33***	.32***	.15
Involvement	-.18*	-.13	-.27**
Poor monitoring	.04	-.05	-.08
Corporal Punishment	.20*	.18*	.19*
Positive Parenting	.12	.05	.01

Note: $R^2_{\text{hyperactivity}} = .03$, n.s., for Step1; $\Delta R^2_{\text{hyperactivity}} = .22$, $p < .001$, for Step 2. $R^2_{\text{aggression}} = .004$, n.s., for Step1; $\Delta R^2_{\text{aggression}} = .16$, $p < .001$, for Step 2. $R^2_{\text{attention problems}} = .08$, $p < .01$, for Step1; $\Delta R^2_{\text{attention problems}} = .13$, $p < .001$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Table 9
Regression Coefficients and Beta Weights for the Relations Between Individual Parenting Techniques and Teacher-reported Hyperactivity, Aggression, and Attention Problems

	Hyperactivity	Aggression	Attention Problems
Step 1			
Overall R coefficient	.02	.02	.23*
Child Gender	--	--	-.24*
SES	-.02	-.02	-.05
Step 2			
Overall R coefficient	.22	.17	.32*
Child Gender	--	--	-.21
SES	.10	-.00	.01
Parenting Techniques			
Inconsistent Discipline	.09	.10	.08
Involvement	-.17	-.12	-.20*
Poor monitoring	.00	-.02	.03
Corporal Punishment	.03	.06	-.03
Positive Parenting	.19*	.10	.18

Note: $R^2_{\text{hyperactivity}} = .00$, n.s., for Step1; $\Delta R^2_{\text{hyperactivity}} = .05$, n.s., for Step 2. $R^2_{\text{aggression}} = .00$, n.s., for Step1; $\Delta R^2_{\text{aggression}} = .03$, n.s., for Step 2. $R^2_{\text{attention problems}} = .06$, $p < .05$, for Step1; $\Delta R^2_{\text{attention problems}} = .05$, $p < .05$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Relation of Maternal Distress and Maternal Stress Variables with Child Behavior

Parent-reported Child Behavior

To test Hypothesis 2 and to begin to test Hypothesis 3 with the first step of the mediational analyses (Baron & Kenny, 1986), regression analyses were run to determine if maternal distress (anxiety/depression Composite) was significantly related to child behaviors of hyperactivity, aggression, and attention problems. Gender was controlled in analyses that included parent-reported hyperactivity and attention problems. For parent-reported child hyperactivity and child attention problems, maternal distress explained

27.7% and 18.9% of the variance, respectively, after controlling for child gender, overall $R_{hyperactivity} = .55$, $p < .001$; overall $R_{attention\ problems} = .50$, $p < .001$. The standardized Beta weight for maternal distress predicting child hyperactivity was $\beta = .53$, and the standardized Beta weight for maternal distress predicting child attention problems was $\beta = .44$. For parent-reported child aggression, maternal distress explained 13.7% of the variance in child aggression; this relation was significant, $R_{aggression} = .37$, $p < .001$; $\beta_{maternal\ distress} = .37$. See Table 10. Separate regression analyses were run to consider the same predictors and dependent variables but controlling for SES for all child behaviors (in addition to the control for gender that was already included for parent-reported hyperactivity and attention problems). These separate analyses were run to maintain consistency in the multi-step process of Baron and Kenny's mediational tests, since later steps in Baron and Kenny's model have the potential to include those parenting techniques found to be significantly related to SES. Controlling for both SES and gender, maternal distress remained a significant predictor for both child hyperactivity, $R^2\ change_{hyperactivity} = .27$, $p < .001$; $\beta_{maternal\ distress} = .52$, and child attention problems, $R^2\ change_{attention\ problems} = .19$, $p < .001$; $\beta_{maternal\ distress} = .43$. Controlling for SES, maternal distress was significantly related to parent-reported child aggression, $R^2\ change_{aggression} = .14$, $p < .001$; $\beta_{maternal\ distress} = .37$. These results suggested that, after controlling for relevant demographic variables, higher levels of maternal distress related to higher levels of all three child behaviors, and maternal distress accounts for approximately 14 - 27% of the variance in these child behaviors.

Table 10
Regression Coefficients and Individual Beta Weights for the Relation Between Maternal Distress and Stress and Parent-Reported Child Behaviors

	Maternal Distress (Anxiety/Depression)		Maternal Stress	
	R^2 Change [a]	β	R^2 Change	β
Hyperactivity [b]	.28***	.53***	.13***	.36***
Aggression	.14***	.37***	.11***	.33***
Attention Problems [b]	.19***	.44***	.10***	.32***

[a] R^2 Change reflects the unique variance of maternal distress or stress on each child behavior. [b] analyses controlled for gender.
* p < .05, **p < .01, ***p < .001.

Regression analyses were also conducted to determine the relation between maternal stress and the three child behaviors. Maternal stress was also found to be significantly related to all three parent-reported child behaviors. Maternal stress explained 13.2% of the variance in child hyperactivity after controlling for gender, overall $R = .39$, $p < .001$; $\beta_{maternal\ stress} = .36$. Maternal stress explained 10.5% of the variance in child aggression, $R = .33$, $p < .001$; $\beta_{maternal\ stress} = .33$. Maternal stress also explained 10.3% of the variance in child attention problems above and beyond child gender, overall $R = .41$, $p < .001$; $\beta_{maternal\ stress} = .32$. See Table 10. Additional regression analyses also predicting parent-report child behavior from maternal stress were conducted to control for SES for all child behaviors (in addition to the control for gender that was already included for parent-reported hyperactivity and attention problems). These additional analyses maintain consistency across the multi-step test for mediational

effects. The results of these analyses are consistent with previous results controlling for gender only. Controlling for both SES and gender, maternal stress remained a significant predictor for both child hyperactivity, $R^2\ change_{hyperactivity} = .14$, $p < .001$; $\beta_{maternal\ stress} = .38$, and child attention problems $R^2\ change_{attention\ problems} = .09$, $p < .001$; $\beta_{maternal\ stress} = .31$. Controlling for SES, maternal stress was significantly related to parent-reported child aggression, $R^2\ change_{aggression} = .11$, $p < .001$; $\beta_{maternal\ distress} = .33$. These results suggest that after controlling for relevant demographic variables, higher levels of maternal stress related to higher levels of parent-reported child behavior problems, and maternal distress explains approximately 9 – 14% of the variance in child behavior problems.

Teacher-reported Child Behavior

For all analyses involving teacher-reported attention problems, gender was a control variable since gender was found to be significantly related to teacher-reported attention problems. For teacher-reported child behaviors, maternal distress was significantly related to child attention problems, after controlling for child gender, overall $R = .29$, $p < .05$; $\beta_{maternal\ distress} = .19$. Maternal distress explained 3.6% of the variance in teacher-reported child attention problems above and beyond child gender. Maternal distress was not significantly related to teacher-reported child hyperactivity, $R = .13$, n.s., or teacher-reported child aggression, $R = .10$, n.s. See Table 11. Additional analyses were also run to consider these same relations while controlling for SES for all three teacher-reported behaviors (in addition to the control for gender that was already included for teacher-reported child attention problems). Maternal distress was not

significantly related to child hyperactivity, overall $R = .13$, n.s., or child aggression, overall $R = .10$, n.s., after controlling for SES. Maternal distress remained a significant predictor, $\beta = .19$, of teacher reported attention problems after controlling for both SES and child gender, R^2 *change* $= .03$, $p < .05$. This finding suggests that after controlling for SES, female caregivers who report higher levels of distress also have children who demonstrate higher levels of attention problems in the classroom.

Table 11
Regression Coefficients and Individual Beta Weights for the Relation Between Maternal Distress and Stress and Teacher-Reported Child Behaviors

	Maternal Distress (Anxiety/Depression)		Maternal Stress	
	R^2 Change [a]	β	R^2 Change [a]	β
Hyperactivity	.02	.13	.00	-.02
Aggression	.01	.10	.00	-.07
Attention Problems [b]	.04*	.19*	.00	.01

[a] R^2 Change reflects the unique variance of maternal distress or stress on each child behavior. [b] analyses controlled for gender.
* p < .05, **p < .01, ***p < .001.

Maternal stress was not found to be significantly related to any of the three teacher-reported child behaviors. The regression coefficient for child hyperactivity was 0.02 (n.s.), and the regression coefficient for child aggression was 0.07 (n.s.). When controlling for gender, the overall model for teacher-reported child attention problems was significant, overall $R = 0.22$, $p < .01$, suggesting that when combined, child gender

and maternal stress explain 4.8% of the variance in teacher-reported child attention problems. However, the Beta weight for maternal stress was not significant, $\beta = .01$, n.s. See Table 11. Additional analyses were run to control for SES and indicated similar results. Maternal stress was not significantly related to teacher-reported child hyperactivity, overall $R = .02$, n.s., or child aggression, overall $R = .07$, n.s., after controlling for SES. For teacher-reported attention problems, the overall model, including maternal stress, SES, and child gender was significant, overall $R = .23$, $p < .05$; however, maternal stress was not a significant, unique predictor.

Overall, maternal distress and maternal stress were significant predictors of all three parent-reported child behaviors, even after controlling for child gender and SES when necessary. For teacher-reported child behaviors, maternal distress was only significantly related to child attention problems. In subsequent mediational analyses only these significant relations have been considered.

Relation of Maternal Distress and Maternal Stress with Parenting Techniques

Parent-reported Child Behavior

To continue testing Hypothesis 3, which considers the mediational roles of parenting techniques on the relation between maternal distress or maternal stress and child behavior problems, step two of Baron and Kenny's (1986) mediational model must be considered. Step two states that a significant relation must exist between the independent variables and the potential mediator. As can be noted from Table 3, which describes the correlations between the variables of interest for this study, these relations have been considered preliminarily. For parent-reported child behavior, two parenting

techniques were significantly related to maternal distress (anxiety/depression composite): parental involvement, $r = -.20$, $p < .05$, and inconsistent discipline, $r = -.32$, $p < .001$. However, these simple correlations did not control for child gender or SES. Due to the multi-step process of testing a mediational model, as proposed by Baron and Kenny (1986), it is necessary to control for gender in all analyses in this process. Therefore, two regression analyses were run to predict parental involvement or inconsistent discipline from maternal distress while controlling for child gender. In addition, analyses including parental involvement also included SES as a control variable due to the significant relations of SES and parental involvement. Maternal distress was found to be a significant predictor of parental involvement above and beyond child gender and SES, overall $R = .32$, $p < .01$; $\beta_{anxiety/depression} = -.20$. Maternal distress explained 4.1% of the variance in parental involvement above and beyond child gender and SES. Maternal distress was also found to be a significant predictor of inconsistent discipline, accounting for 10.2% of the variance above and beyond child gender, overall $R = .32$, $p < .001$; $\beta_{anxiety/depression} = .32$, $p < .001$. See Table 12 for all regression coefficients between maternal distress, parenting techniques, and appropriate control variables.

Table 12
Regression Coefficients of the Relation Between Maternal Distress (Anxiety/Depression composite) and Parenting Techniques for Both Samples

	PR sample		TR sample	
	R^2 Change [a]	$\beta_{Anx/Dep}$ [b]	R^2 Change	$\beta_{Anx/Dep}$
Inconsistent Discipline [c]	.10***	.32***	.10***	.31***
Parental Involvement [c d]	.04*	-.20*	.05**	-.22**
Positive Parenting [c]	.01	-.12	.01	-.11
Poor Parental Monitoring [c]	.01	.08	.01	.09
Corporal Punishment [c]	.02	.16	.02	.15

Note: PR = parent-reported child behavior sample, TR = teacher-reported child behavior sample.
[a] R^2 change reflects the unique variance of the parenting technique. [b] Anx/Dep = Anxiety/Depression composite. [c] analyses controlled for gender. [d] analyses controlled for SES.
* p < .05, **p < .01, ***p < .001.

For maternal stress, simple correlations from earlier analyses (Table 3) concluded that maternal stress was significantly related to parental involvement, positive parenting, and inconsistent discipline. Additional regression analyses were run to determine if these relations remained significant after controlling for gender. Analyses including parental involvement also included SES as a control variable. Maternal stress was significantly related to parental involvement after controlling for gender and SES, overall $R = .36$, $p < .001$; $\beta_{maternal\ stress} = -.27$, suggesting that higher levels of stress relate to less use of parental involvement techniques. Maternal stress accounted for 7.3% of the variance in parental involvement above and beyond child gender and SES. Maternal stress was also significantly related to inconsistent discipline after controlling for child gender, overall $R = .31$, $p < .01$; $\beta_{maternal\ stress} = .31$, such that increases in maternal stress is related to

increases in the use of inconsistent discipline. Maternal stress explains 9.6% of the variance in inconsistent discipline above and beyond child gender. The overall model predicting positive parenting from maternal stress while controlling for child gender was not significant, overall $R = .17$, n.s.; however, the Beta weight for maternal stress was significant, $\beta_{maternal\ stress} = -.16$, $p < .05$. This suggests that as maternal stress increases, the use of positive parenting skills decreases. Table 13 displays the regression coefficients between maternal stress, parenting techniques and proper control variables. These results propose that higher levels in maternal stress and distress are related to more use of inconsistent discipline and less parental involvement. Therefore, both parenting techniques of parental involvement and inconsistent discipline should be further considered as potential mediators on the relation between maternal distress and parent-reported child behavior. All other parenting techniques will not be considered for their mediating role on maternal distress and child behavior because they did not significantly relate to maternal distress.

Teacher-reported Child Behavior

Table 4 displays the simple correlations between maternal distress, stress, and parenting techniques for the teacher-report sample. According to the results in Table 4, maternal distress was significantly related to parental involvement and inconsistent discipline. However, since these results do not control for significant demographic variables, additional regression analyses were run to control for gender in both regressions and to control for SES for the regression considering parental involvement.

Table 13

Regression Coefficients of the Relation Between Maternal Stress and Parenting Techniques

	PR sample	
	R^2 Change [a]	β_{Stress} [b]
Inconsistent Discipline [c]	.10***	.31***
Parental Involvement [c d]	.07**	-.27**
Positive Parenting [c]	.03*	-.16*
Poor Parental Monitoring [c]	.01	.07
Corporal Punishment [c]	.01	.10

Note: PR = parent-reported child behavior sample.
[a] R^2 change reflects the unique variance of the parenting technique. [b] Stress = Parent Domain on the Parenting Stress Index (PSI). [c] analyses controlled for gender. [d] analyses controlled for SES.
* p < .05, **p < .01, ***p < .001.

Maternal distress, β = -.22, was a significant predictor of parental involvement controlling for gender and SES; the overall model was significant, overall R = .33, p < .01. Maternal distress was also a significant predictor, β = .31, of inconsistent discipline controlling for gender, overall R = .31, p < .05. These results suggest that after controlling for appropriate demographic variables, female caregivers who report high levels of distress also report low levels of parental involvement and high levels of inconsistent discipline. See Table 12. Since maternal stress was not related to any of the three teacher-reported child behaviors, further analyses of the relations between maternal stress and parenting techniques is not warranted.

Mediating Role of Parenting Techniques

Focusing on significant relations found in this study, the following results consider the third and fourth steps of Baron and Kenny's mediational model for the following models of the parent-report sample: mediational role of parental involvement on the relations between maternal distress and all three child behaviors, as well as between maternal stress and all three child behaviors; mediational role of inconsistent discipline on the relations between maternal distress and all three child behaviors, as well as between maternal stress and all three child behaviors; mediational role of positive parenting on the relations between maternal stress and all three child behaviors. In addition, mediational analyses were conducted for the teacher-report sample: mediational role of parental involvement on the relation between maternal distress and teacher-reported attention problems; mediational role of inconsistent discipline on the relation between maternal distress and teacher-reported attention problems. Relevant demographic variables (e.g., child gender and SES) were controlled for when appropriate.

Mediating Role of Parenting Techniques on the Relation Between Maternal Distress and Child Behavior

Parent-reported child hyperactivity. Two potential mediators were considered for parent-reported child hyperactivity, inconsistent discipline and parental involvement. A hierarchical regression controlling first for gender, then considering maternal distress and inconsistent discipline as predictors was conducted. To follow the steps of Baron and Kenny (1986), it was first determined that inconsistent discipline was a significant

predictor of parent-reported child hyperactivity while controlling for child gender and maternal distress ($\beta_{inconsistent\ discipline} = .25$). With the addition of inconsistent discipline, the amount of variance explained in child hyperactivity by the overall model increased to 35.5%, $R = .60$, $p < .001$. The Beta weight of the anxiety/depression composite dropped from .53, $p < .001$, to .45, $p < .001$. A Sobel test of indirect effects was calculated to determine if the indirect effect is significantly different from zero (Preacher & Leonardelli, 2003). The Sobel statistic for this model was 2.68, $p < .01$, indicating that the mediator does carry some influence in the relation between the independent variable and the dependent variable. This finding suggests that inconsistent discipline partially mediates the relation between maternal distress and child hyperactivity as reported by the maternal caregiver. See Table 14 for the regression coefficients and Beta weights for the third and fourth step of this mediational model.

Table 14
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Distress and Parent-Reported Child Hyperactivity Controlling for Child Gender

	Overall R	β
Step 1	.55*** [a]	
Child Gender		-.16*
Anxiety/Depression Composite		.53***
Step 2	.60***	
Child Gender		-.16*
Anxiety/Depression Composite		.45***
Inconsistent Discipline		.25**

Note: $R^2 = .30$, $p < .001$, for Step 1; $\Delta R^2 = .05$, $p < .01$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A second hierarchical regression was run to determine the mediating role of parental involvement on the relation between maternal distress and parent-reported child hyperactivity after controlling for gender and SES. With the addition of parental involvement, the overall model remained significant, $R = .55$, $p < .001$, suggesting that 30% of the variance in child hyperactivity is explained by maternal distress, parental involvement, gender and SES. However, parental involvement did not contribute a significant amount of unique variance above and beyond maternal distress, $\beta = -.05$, n.s. Therefore, further tests of mediation were not conducted (see Table 15).

Table 15
Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Distress and Parent-Reported Child Hyperactivity Controlling for Child Gender and SES

	Overall R	β
Step 1	.55***	
SES		-.00
Child Gender		-.16*
Anxiety/Depression Composite		.53***
Step 2	.55***	
SES		.01
Child Gender		-.16*
Anxiety/Depression Composite		.51***
Parental Involvement		-.05

Note: $R^2 = .30$, $p < .001$, for Step 1; $\Delta R^2 = .003$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

P*arent-reported child aggression.* A hierarchical regression was run to determine if inconsistent discipline mediated the relation between maternal distress and parent-reported child aggression. The results from this analysis suggested that inconsistent discipline was a significant predictor of child aggression above and beyond maternal distress, $\beta = .26$, and the inclusion of inconsistent discipline contributed an additional 6.0% of variance in the explanation of parent-reported child aggression, overall $r = .44$, $p < .001$. While controlling for inconsistent discipline, the Beta weight of the anxiety/depression composite dropped from .37, $p < .001$, to .29, $p < .001$. The Sobel test of indirect effects was 2.58, $p < .01$, indicating that inconsistent discipline partially mediated the relation between maternal distress and parent-reported child aggression (see Table 16).

Table 16
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Distress and Parent-Reported Child Aggression

	Overall R	β
Step 1	.37***	
Anxiety/Depression Composite		.37***
Step 2	.44***	
Anxiety/Depression Composite		.29***
Inconsistent Discipline		.26**

Note: $R^2 = .14$, $p < .001$, for Step 1; $\Delta R^2 = .06$, $p < .01$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A second hierarchical regression was run to determine the mediating role of parental involvement on the relation between maternal distress and parent-reported child aggression after controlling for SES. With the addition of parental involvement, the overall model remained significant, $R = .38$, $p < .001$, which suggests that 12.8% of the variance in child aggression is explained by maternal distress, parental involvement, and SES. However, parental involvement did not contribute a significant amount of unique variance above and beyond maternal distress, $\beta = -.07$, n.s. Therefore, further tests of mediation were not conducted (see Table 17).

Table 17

Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Distress and Parent-Reported Child Aggression Controlling for SES

	Overall R	β
Step 1	.38***	
SES		-.06
Anxiety/Depression Composite		.37***
Step 2	.38***	
SES		-.05
Anxiety/Depression Composite		.36***
Parental Involvement		-.07

Note: $R^2 = .14$, $p < .001$, for Step 1; $\Delta R^2 = .004$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Parent-reported child attention problems. Two potential mediators were also considered to influence the relation between maternal distress and parent-reported child attention problems. A hierarchical regression was run to determine if inconsistent

discipline mediated the relation between maternal distress and parent-reported child attention problems, controlling for child gender. The predictor of inconsistent discipline was not significant after controlling for maternal distress and gender, $\beta = .06$, even though the overall model was significant, overall $R = .51$, $p < .001$. Since inconsistent discipline was not a significant predictor after controlling for maternal distress and gender, no further tests of mediation were conducted (see Table 18).

Table 18
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Distress and Parent-Reported Child Attention Problems and Teacher-Reported Child Attention Problems Controlling for Gender

	PR sample		TR sample	
	Overall R	β	Overall R	β
Step 1	.50***		.29**	
Child Gender		-.25***		-.22**
Anxiety/Depression Composite		.44***		.19**
Step 2	.51***		.29**	
Child Gender		-.25**		-.22**
Anxiety/Depression Composite		.42***		.18*
Inconsistent Discipline		.06		.04

Note: PR = Parent-reported Sample; TR = Teacher-reported Sample. $R^2_{\text{parent sample}} = .25$, $p < .001$, for Step 1, $\Delta R^2_{\text{parent sample}} = .003$, n.s., for Step 2. $R^2_{\text{teacher sample}} = .08$, $p < .05$, for Step 1, $\Delta R^2_{\text{teacher sample}} = .001$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A second hierarchical regression was run to determine if parental involvement mediated the relation between maternal distress and parent-reported child attention

problems controlling for child gender and SES. The results from this analysis suggested that parental involvement was a significant predictor of child attention problems above and beyond maternal distress, gender, and SES, $\beta_{parental\ involvement} = -.18$. The addition of parental involvement contributed an additional 3.0% of unique variance of parent-reported child attention problems, overall $R = .55$, $p < .001$. While controlling for parental involvement, the Beta weight of the anxiety/depression composite dropped from .43, $p < .001$, to .40, $p < .001$. The Sobel test of indirect effects was 1.81, $p = .07$, indicating that parental involvement does not carry significant influence in the relation between the independent variable and the dependent variable. That is, the results of the Sobel test indicated that the indirect effect was not significantly different from zero (see Table 19).

Teacher-reported child attention problems. For the teacher-reported child behavior sample, two potential mediators were also noted from the results of the first two steps of Baron and Kenny's (1986) mediational analyses. Parental involvement and inconsistent discipline were further tested as potential mediators on the relation between maternal distress and teacher-reported child attention problems. A hierarchical regression was run to determine if inconsistent discipline mediated the relation between maternal distress and teacher-reported child attention problems. When added to the model, the overall model was significant, overall $R = .29$, $p < .01$. However, inconsistent discipline, $\beta = .04$, was not a significant predictor of teacher-reported attention problems after controlling for gender and maternal distress. Therefore, no further tests of mediation were conducted (see Table 18).

Table 19
Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Distress and Parent-Reported Child Attention Problems and Teacher-Reported Child Attention Problems Controlling for Gender and SES

	PR sample		TR sample	
	Overall R	β	Overall R	β
Step 1	.52***		.30**	
SES		-.15*		-.05
Child Gender		-.27***		-.24**
Anxiety/Depression Composite		.43***		.19*
Step 2	.55***		.31**	
SES		-.10		-.02
Child Gender		-.26**		-.23**
Anxiety/Depression Composite		.40***		.17*
Parental Involvement		-.18*		.09

Note: PR = Parent-reported Sample; TR = Teacher-reported Sample. $R^2_{\text{parent sample}} = .27$, $p < .001$, for Step 1, $\Delta R^2_{\text{parent sample}} = .03$, $p < .05$, for Step 2. $R^2_{\text{teacher sample}} = .09$, $p < .05$, for Step 1, $\Delta R^2_{\text{teacher sample}} = .007$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Similar results were found with a second hierarchical regression was run to determine if parental involvement mediated the relation between maternal distress and teacher-reported child attention problems controlling for gender and SES. With the inclusion of parental involvement, the amount of variance explained in teacher-reported child attention problems increased by 0.7%, overall $R = .31$, $p < .01$; however the additional variance was not significant. Parental involvement, $\beta = -.09$, was not a significant predictor of teacher-reported attention problems after controlling for maternal

distress, gender, and SES. Therefore, the final test of mediation (Baron and Kenny, 1986) was not tested (see Table 19).

In summary, inconsistent discipline was found to partially mediate the relation between a maternal caregiver's report of her anxious and depressive symptomatology and her report of her child's hyperactive and aggressive behaviors. Although parental involvement contributed significantly to the model of maternal distress predicting child attention problems after controlling for child gender and SES, the size of the indirect effect was not significantly different from zero. Therefore parental involvement was not considered a partial mediator of this relation. No mediators were found for the relation between maternal distress and teacher-reported child attention problems.

Mediating Role of Parenting Techniques on the Relation Between Maternal Stress and Child Behavior

A similar approach (Baron & Kenny, 1986) was used to determine if parenting techniques mediated the relation between maternal stress, as measured by the Parent Domain on the PSI and the three child behaviors as reported by maternal caregivers.

Parent-reported child hyperactivity. Previous analyses indicated the potential for three possible mediating relations between maternal stress and child behaviors: inconsistent discipline, parental involvement, and positive parenting. Separate hierarchical regressions were run to test for these mediational relations.

A hierarchical regression was run to determine if inconsistent discipline was a significant mediator on the relation between maternal stress and child hyperactivity controlling for gender. The overall model was significant, overall $R = .49$, $p < .001$,

explaining 22.4% of the variance in child hyperactivity. Inconsistent discipline was a significant predictor, $\beta = .31$, after controlling for maternal stress and gender. The Beta weight of the Parent Domain composite decreased from .36, $p < .001$, to .27, $p < .001$. A Sobel test of indirect effects was calculated, and the resulting value of 2.65, $p < .01$, suggests that inconsistent discipline does carry some of the influence of the relation between maternal stress and child hyperactivity, and is considered a partial mediator of the relation between maternal stress and child hyperactivity (see Table 20).

Table 20
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Stress and Parent-Reported Child Hyperactivity Controlling for Gender

	Overall R	β
Step 1	.39***	
Child Gender		-.16*
PSI Parent Domain		.36***
Step 2	.49***	
Child Gender		-.16*
PSI Parent Domain		.27***
Inconsistent Discipline		.31***

Note: $R^2 = .16$, $p < .001$, for Step 1; $\Delta R^2 = .084$, $p < .001$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A hierarchical regression was also run to determine if parental involvement was a significant mediator on the relation between maternal stress and child hyperactivity controlling for gender and SES. With the addition of parental involvement, the amount of variance explained in parent-reported child hyperactivity by the overall model

increased to 17.2%, overall $R = .41$, $p < .001$. However, parental involvement was not a significant predictor of child hyperactivity after controlling for maternal stress, gender, and SES, $\beta = -.06$. Thus, further mediational analyses were not conducted (see Table 21).

Table 21
Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Stress and Parent-Reported Child Hyperactivity Controlling for Gender and SES

	Overall R	β
Step 1	.41***	
SES		.05
Child Gender		-.17*
PSI Parent Domain		.38***
Step 2	.41***	
SES		.06
Child Gender		-.16*
PSI Parent Domain		.36***
Parental Involvement		-.06

Note: $R^2 = .17$, $p < .001$, for Step 1; $\Delta R^2 = .003$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A third hierarchical regression considered the mediating influence of positive parenting on the relation between maternal stress and child hyperactivity controlling for gender. While the overall model was significant and explained 16.4% of the variance in child hyperactivity, overall $R = .41$, $p < .001$, positive parenting, $\beta = .09$, was not a significant predictor of child hyperactivity above and beyond maternal stress and gender. Thus, further mediational analyses were not considered (see Table 22).

Table 22
Summary of Hierarchical Regression Analysis for Mediating Role of Positive Parenting on the Relation between Maternal Stress and Parent-Reported Child Hyperactivity Controlling for Gender

	Overall R	β
Step 1	.39***	
Child Gender		-.16*
PSI Parent Domain		.36***
Step 2	.41***	
Child Gender		-.16*
PSI Parent Domain		.38***
Positive Parenting		.09

Note: $R^2 = .16$, $p < .001$, for Step 1; $\Delta R^2 = .008$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Parent-reported child aggression. A hierarchical regression was run to determine if inconsistent discipline mediated the relation between maternal stress and child aggression. The results from this analysis determined that the inclusion of inconsistent discipline increased the overall amount of variance accounted for in child aggression to 17.3%, overall $R = .42$, $p < .001$. Inconsistent discipline, $\beta = .27$, was a significant predictor above and beyond maternal stress. The Beta weight for the Parent Domain decreased from .33, $p < .001$, to .24, $p < .01$, and the Sobel test of indirect effects was 2.48, $p < .05$, indicating a partial mediating role of inconsistent discipline on the relation between maternal stress and child aggression (see Table 23).

Table 23
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Stress and Parent-Reported Child Aggression

	Overall R	β
Step 1	.33***	
PSI Parent Domain		.33***
Step 2	.42***	
PSI Parent Domain		.24**
Inconsistent Discipline		.27**

Note: $R^2 = .11$, $p < .001$, for Step 1; $\Delta R^2 = .068$, $p < .01$, for Step 2.
* p < .05, **p < .01, ***p < .001.

A second hierarchical regression was run to determine the mediating role of parental involvement on the relation between maternal stress and parent-reported child aggression after controlling for SES. With the addition of parental involvement, the overall model remained significant, $R = .33$, $p < .01$, and suggested that 11.2% of the variance in child aggression is explained by maternal stress, parental involvement, and SES. However, parental involvement did not contribute a significant amount of unique variance above and beyond maternal stress, $\beta = -.05$, n.s. Therefore, further tests of mediation were not conducted (see Table 24).

A hierarchical regression determining the mediating role of positive parenting on the relation between maternal stress and child aggression indicated an overall significant model, overall $R = .33$, $p < .001$. However, positive parenting was not a significant predictor after controlling for maternal stress, $\beta = .02$, n.s. No further tests of mediation were conducted (see Table 25).

Table 24
Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Stress and Parent-Reported Child Aggression Controlling for SES

	Overall R	β
Step 1	.33***	
SES		-.02
PSI Parent Domain		.33***
Step 2	.33**	
SES		-.01
PSI Parent Domain		.31***
Parental Involvement		-.05

Note: $R^2 = .11$, $p < .001$, for Step 1; $\Delta R^2 = .002$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Table 25
Summary of Hierarchical Regression Analysis for Mediating Role of Positive Parenting on the Relation between Maternal Stress and Parent-Reported Child Aggression

	Overall R	β
Step 1	.33***	
PSI Parent Domain		.33***
Step 2	.33***	
PSI Parent Domain		.32***
Positive Parenting		.02

Note: $R^2 = .11$, $p < .001$, for Step 1; $\Delta R^2 = .000$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

Parent-reported child attention problems. One hierarchical regression was run to consider the mediational role of inconsistent discipline on the relation between maternal stress and parent-reported child attention problems, controlling for child gender. The

overall model was significant, $R = .42$, $p < .001$, and accounted for 17.5% of the variance in child attention problems. However, the Beta weight for the inconsistent discipline predictor, $\beta = .10$, was not significant after controlling for maternal stress and child gender. No further mediational analyses were considered (see Table 26).

Table 26
Summary of Hierarchical Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between Maternal Stress and Parent-Reported Child Attention Problems Controlling for Gender

	Overall R	β
Step 1	.41***	
Child Gender		-.26**
PSI Parent Domain		.32***
Step 2	.42***	
Child Gender		-.25**
PSI Parent Domain		.29***
Inconsistent Discipline		.10

Note: $R^2 = .17$, $p < .001$, for Step 1; $\Delta R^2 = .01$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A second hierarchical regression evaluated the mediational role of parental involvement on the relation between maternal stress and parent-reported child attention problems controlling for child gender and SES. The results from this analysis suggested that parental involvement, $\beta = -.20$, was a significant predictor of parent-reported child attention problems above and beyond maternal stress, gender, and SES. The addition of parental involvement contributed an additional 2.1% of unique variance of parent-

reported child attention problems, overall $R = .46$, $p < .001$. While controlling for parental involvement, the Beta weight of the PSI Parent Domain scale dropped from .31, $p < .001$, to .26, $p < .01$. The Sobel test of indirect effects was 1.77, $p = .077$, indicating that parental involvement does not carry significant influence in the relation between the independent variable and the dependent variable. That is, the results of the Sobel test indicated that the indirect effect was not significantly different from zero (see Table 27).

Table 27
Summary of Hierarchical Regression Analysis for Mediating Role of Parental Involvement on the Relation between Maternal Stress and Parent-Reported Child Attention Problems Controlling for Gender and SES

	Overall R	β
Step 1	.42***	
SES		-.11
Child Gender		-.27***
PSI Parent Domain		.31***
Step 2	.46***	
SES		-.07
Child Gender		-.26**
PSI Parent Domain		.26***
Parental Involvement		-.20*

Note: $R^2 = .18$, $p < .001$, for Step 1; $\Delta R^2 = .034$, $p < .05$, for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

A third hierarchical regression considered the mediating role of positive parenting on the relation between maternal stress and parent-reported child attention problems. The overall model was significant, overall $R = .41$, $p < .001$; however, positive parenting was not a significant predictor, $\beta = -.06$, of parent-reported attention

problems above and beyond maternal stress and child gender. Further tests of mediation were not conducted (see Table 28).

Table 28
Summary of Hierarchical Regression Analysis for Mediating Role of Positive Parenting on the Relation between Maternal Stress and Parent-Reported Child Attention Problems Controlling for Gender

	Overall R	β
Step 1	.41***	
Child Gender		-.26**
PSI Parent Domain		.32***
Step 2	.41***	
Child Gender		-.26*
PSI Parent Domain		.31***
Positive Parenting		-.06

Note: $R^2 = .17$, $p < .001$, for Step 1; $\Delta R^2 = .003$, n.s., for Step 2.
* $p < .05$, **$p < .01$, ***$p < .001$.

In conclusion, similar to the results reported for a maternal caregiver's report of her anxious and depressive symptomatology, inconsistent discipline was found to partially mediate the relation between a maternal caregiver's report of her personal stress and stress related to parenting and her report of aggressive and hyperactive behaviors in her child. Parental involvement, although a significant predictor along with maternal stress, gender, and SES on child attention problems, was not found to partially mediate the relation between maternal stress and child attention problems.

Structural Equation Modeling of Mediational Models

From previous research and the current study, certain parenting techniques have demonstrated a mediational relation with parent characteristics (e.g., stress and distress) individually and child behavior problems. From these results, it is hypothesized that when these variables are combined, a partially mediating model will continue to exist for these variables and provide a more comprehensive picture regarding the relation of parent variables and child behavior problems. However, both full mediational and partial mediational analyses were performed and compared. SEM analyses were only run for parent-reported child behaviors because none of the teacher-reported child behaviors were found to be related to maternal stress, child aggression, and child hyperactivity. However, models were run for parent-reported attention problems, even though it was found that the decreases in Beta weights for both maternal distress and maternal stress were not significant. Earlier analyses demonstrated significant relations between all variables involved, and the inclusion of all variables (e.g., maternal stress and distress) may provide a more comprehensive picture of the relations of these variables for child attention problems. The SEM analyses considered the mediating role of the two parenting composites on the relation between maternal stress and distress and each of the three child behaviors.

Child Hyperactivity

The covariance matrix analyzed for the analyses with child hyperactivity is reported in Table 29. The chi-square minimum fit function of the theoretical model (Figure 1) indicated that the data did not reproduce the original covariance matrix well,

Table 29
Covariance Matrix for SEM Analyses with Parent-reported Child Hyperactivity

	Hyperactivity[a]	Stress[b]	Anx/Dep[c]	Positive Parent[d]	Negative Parent[d]	SES[e]
Hyperactivity	135.21					
Stress	111.04	669.46				
Anx/Dep	3.80	10.20	0.39			
Positive Parent	-0.56	-3.16	-0.05	0.18		
Negative Parent	1.65	2.36	0.06	-0.02	0.15	
SES	0.11	-2.33	-0.00	0.05	-0.03	0.41

[a] Hyperactivity = Hyperactivity Scale on the Behavior Assessment System for Children-2, parent-report. [b] Stress = Parent Domain Scale; reported by the maternal caregiver on the Parenting Stress Index. [c] Anx/Dep = Composite of Anxiety and Depression scales on the Brief Symptom Inventory. [d] Positive Parent = composite of two scales on the Alabama Parenting Questionnaire (APQ); Negative Parent = composite of three scales on the APQ. [e] SES is measured by dividing the level of reported income by the number of people reportedly living in the household.

$\chi^2(5) = 40.54$, $p < .001$. The SRMR (.11) fell above the proposed cut-off indicating simple model misspecification. In addition, the RMSEA (.21; 90% confidence interval .15-.27) exceeded the cut-off indicating that there may be a problem with complex model misspecification. The CFI (.80), which tends to be more robust to sample size and distribution also indicated some complex model misspecification.

Four parameter estimates were significant. Parental stress and a participant's SES significantly predicted positive parenting techniques. A maternal caregiver's level of distress predicted negative parenting techniques, and negative parenting techniques predicted a child's hyperactivity. Overall, the factors for each endogenous variable explain little of the variance. Parenting techniques explains roughly 14% of the variance in parent-reported child hyperactivity. The Parent Domain of the PSI and the anxiety/depression composite explain a combined 11% of the variance in the positive parenting composite, and 7.1% of the variance in the negative parenting composite. See Figure 1 for the unstandardized and standardized path estimates.

A post-hoc alternative model was considered and run with the same data. This model hypothesized that there would be additional direct effects between the Anxiety/Depression composite and child hyperactivity as well as between the parent's level of stress (PSI Parent Domain) and child hyperactivity. One explanation for adding these paths is the idea that previous research has indicated direct relations between stress of a caregiver and a caregiver's distress with child behaviors. Therefore, parenting techniques may not fully mediate the relation between maternal stress, maternal distress

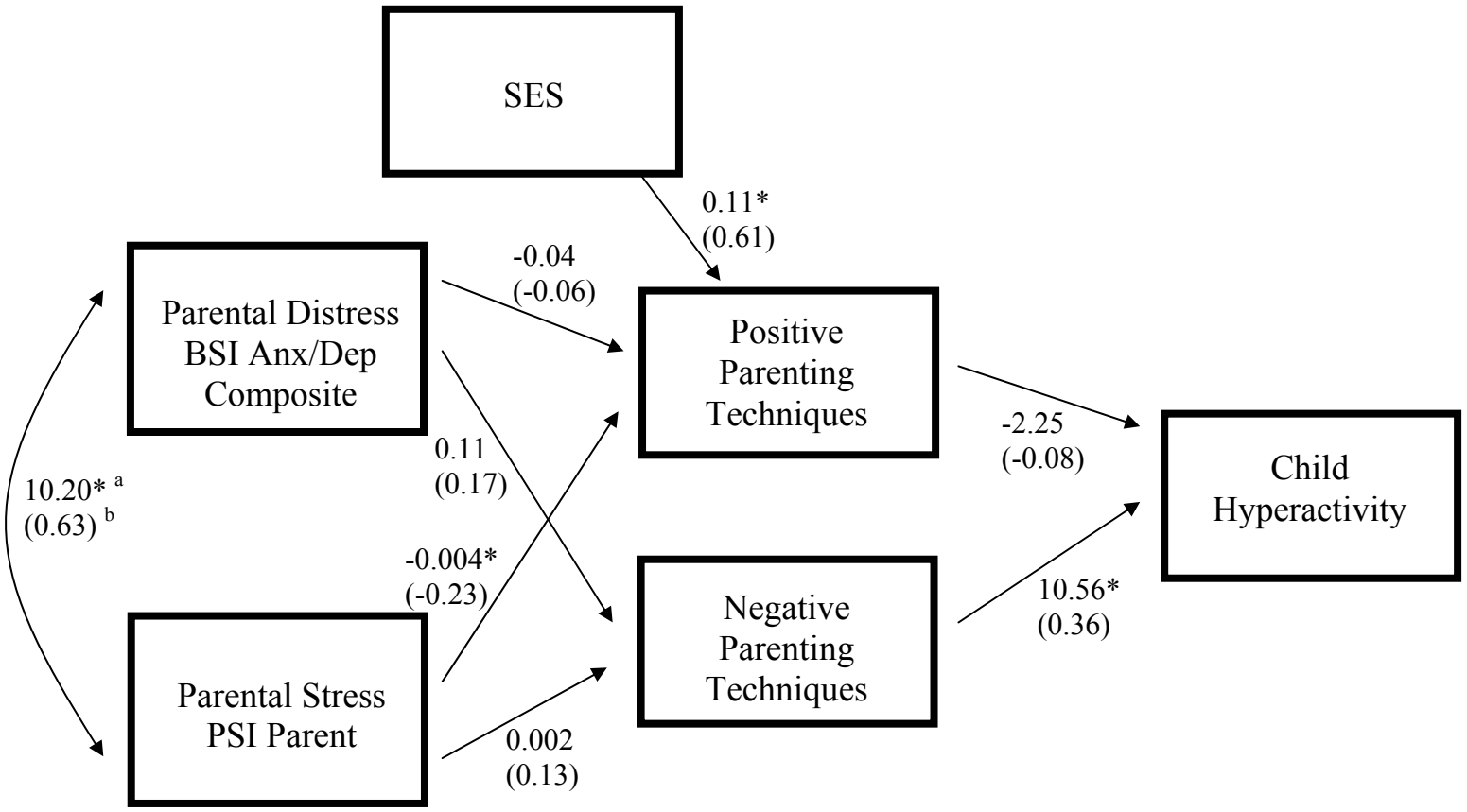

Figure 1. Mediation of parenting techniques on the relation between parent characteristics and child hyperactivity. Standardized paths are reported in parentheses. * p<.05.

and child hyperactivity, but instead parenting techniques may help to explain only a portion of this relation. See Figure 2 for a graphical representation of this model.

The alternative model demonstrated better fit to the original model. The chi-square statistic was significant, $\chi^2(3) = 2.58$, $p < .05$, indicating that the reproduced matrix did not fit the original covariance matrix. The SRMR, (.03) indicated adequate fit for simple model specification. In addition, the CFI (1.00) indicated appropriate complex model specification, and the RMSEA (.00, 90% confidence interval of .00-.13) did fall within the proposed cut-off. However, significant unstandardized paths demonstrated the same trend as the full mediational model with the exception of one significant path between maternal distress and child hyperactivity. The four predictors of child hyperactivity explained 33% of the variance, an increase of 19% from the theoretical model. The same amount of variance was explained from both maternal stress and distress for the positive parenting composite (11%) and the negative parenting composite (7.1%).

Since the theoretical model is nested within the alternative model, a chi-square difference test was calculated to determine if the alternative model fit significantly better than the original model. The chi-square difference was 37.96 with two degrees of freedom. By calculating the *p*-value for this test, it was determined that there was a significant difference between the fit of the models ($p < .001$). This suggests that the alternative model does fit significantly better than the theoretical model.

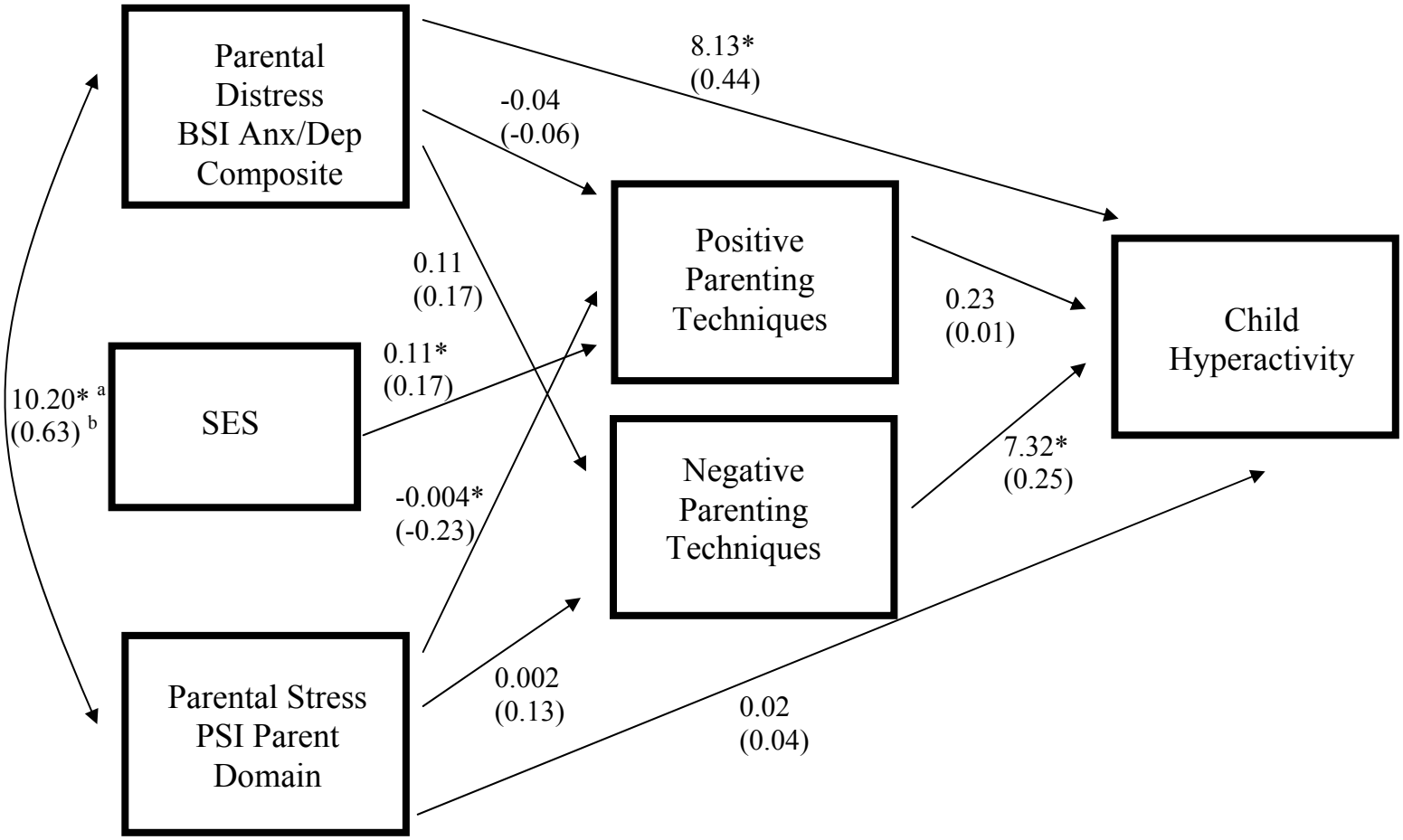

Figure 2. Partial mediation of parenting techniques on the relation between parent characteristics and child hyperactivity. Standardized paths are reported in parentheses. * p<.05.

Child Aggression

The covariance matrix analyzed for the analyses with child hyperactivity is reported in Table 30. The chi-square minimum fit function of the theoretical model (see Figure 3) indicated that the data did not reproduce the original covariance matrix well, $\chi^2(5) = 18.61, p < .01$. The SRMR (.08) fell right at the proposed cut-off indicating adequate simple model specification. The CFI (.91) indicated some complex model misspecification. The RMSEA (.13, 90% confidence interval of .07-.20) exceeded the proposed cut-off indicating that there may also be a problem with complex model misspecification.

Similar to child hyperactivity, the negative parenting composite did demonstrate a significant direct effect with child aggression; however, the positive parenting composite did not. In addition, maternal stress and SES significantly predicted positive parenting techniques; however, no exogenous variables predicted negative parenting techniques. The factors for each endogenous variable explain only a small portion of the variance. The two parenting techniques composites explained 9.4% of the variance in child aggression. Similar to results reported for child hyperactivity, maternal stress and distress contributed 11% of the variance in the positive parenting technique and 7.1% of the variance in the negative parenting composite. See Figure 3 for the unstandardized and standardized path estimates.

Table 30
Covariance Matrix for SEM Analyses with Parent-reported Child Aggression

	Aggression[a]	Stress[b]	Anx/Dep[c]	Positive Parent[d]	Negative Parent[d]	SES[e]
Aggression	129.19					
Stress	97.00	669.46				
Anx/Dep	2.62	10.20	0.39			
Positive Parent	-0.62	-3.16	-0.05	0.18		
Negative Parent	1.29	2.36	0.06	-0.02	0.15	
SES	-0.46	-2.33	-0.00	0.05	-0.03	0.41

[a] Aggression = Aggression Scale on the Behavior Assessment System for Children-2, parent-report. [b] Stress = Parent Domain Scale; reported by the maternal caregiver on the Parenting Stress Index. [c] Anx/Dep = Composite of Anxiety and Depression scales on the Brief Symptom Inventory. [d] Positive Parent = composite of two scales on the Alabama Parenting Questionnaire (APQ); Negative Parent = composite of three scales on the APQ. [e] SES is measured by dividing the level of reported income by the number of people reportedly living in the household.

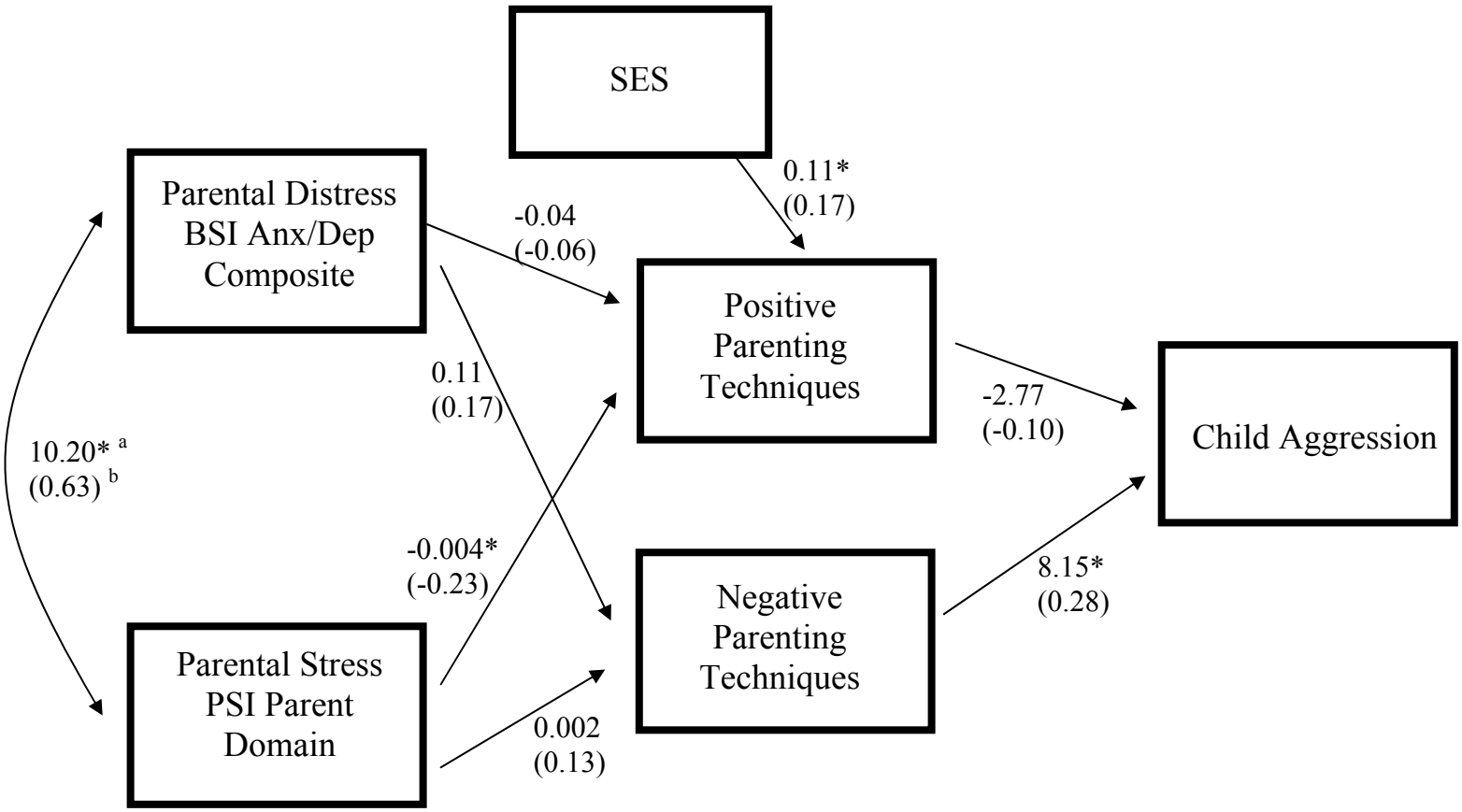

Figure 3. Mediation of parenting techniques on the relation between parent characteristics and child aggression. Standardized paths are reported in parentheses. * p<.05.

Similar to the results for child hyperactivity, a post-hoc alternative model was considered and run on the same data. This model also hypothesized a partial mediating role of parenting techniques on the relation between maternal distress and stress and child aggression. As noted earlier, direct relations have been found between maternal stress and distress and child aggression; therefore, parenting techniques may not fully mediate the relation between maternal distress and stress and child aggression but instead only partially mediate this relation. See Figure 4 for a graphical representation of this model.

The alternative model better fit to the original model. The chi-square statistic was not significant, $\chi^2(3) = 1.99$, $p = 0.57$, indicating that there were no significant differences between the reproduced matrix and the original covariance matrix. The SRMR (.03) indicated adequate fit for simple model specification. The CFI (1.00) demonstrated appropriate complex model specification, and the RMSEA (.00, 90% confidence interval of .00-.12) was lower than the proposed cut-off, indicating little complex model misspecification. Significant unstandardized paths were similar for both the theoretical and alternative model. Negative parenting techniques composite was a significant predictor of child aggression. In addition, maternal caregiver distress was a significant predictor of child aggression. Maternal distress and SES continued to remain

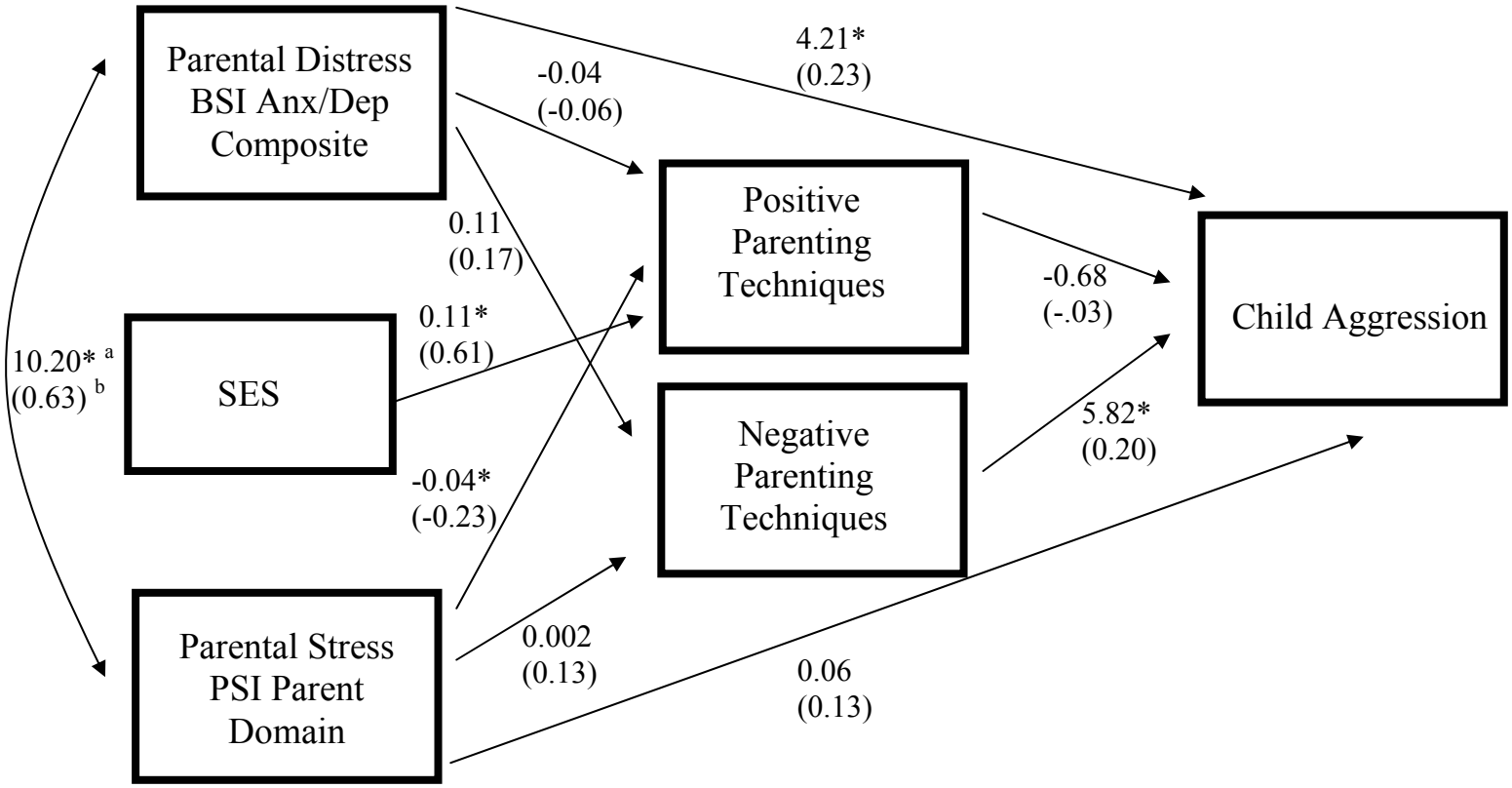

Figure 4. Partial mediation of parenting techniques on the relation between parent characteristics and child aggression. Standardized paths are reported in parentheses. * p<.05.

a significant predictor of positive parenting techniques. The four predictors of child aggression explained 19% of the variance, an increase of 9.6% from the theoretical model. The same amount of variance was explained from both maternal stress and distress for the positive parenting composite (11%) and the negative parenting composite (7.1%).

Since these two models for child aggression are nested, a chi-square difference test was calculated to determine if the alternative model fit significantly better than the original model. The chi-square difference was 16.62 with two degrees of freedom. By calculating the *p*-value for this test, it was found that there was a significant difference between the fit of the models ($p<.001$), indicating that the partial mediating model better explains the data.

Child Attention Problems

The covariance matrix analyzed for the analyses with child hyperactivity is reported in Table 31. The chi-square minimum fit function of the theoretical model (Figure 5) indicated that the data did not reproduce the original covariance matrix well, $\chi^2(5) = 27.34$, $p < .01$. The SRMR (.09) fell above the proposed cut-off. This suggests that there is some simple model misspecification. In addition, the RMSEA (.17, 90% confidence interval of .10-.23) exceeded the cut-off indicating that there may be a problem with complex model misspecification. The CFI (.85) also indicated complex model misspecification.

As would be predicted given earlier results, the positive parenting composite was significantly related to child attention problems. The negative parenting composite was

Table 31
Covariance Matrix for SEM Analyses with Parent-reported Child Attention Problems

	Attention Prob[a]	Stress[b]	Anx/Dep[c]	Positive Parent[d]	Negative Parent[d]	SES[e]
Attention Prob	100.15					
Stress	82.03	669.46				
Anx/Dep	2.71	10.20	0.39			
Positive Parent	-1.13	-3.16	-0.05	0.18		
Negative Parent	0.54	2.36	0.06	-0.02	0.15	
SES	-0.73	-2.33	-0.00	0.05	-0.03	0.41

[a] Attention Prob = Attention Problems Scale on the Behavior Assessment System for Children-2, parent-report. [b] Stress = Parent Domain Scale; reported by the maternal caregiver on the Parenting Stress Index. [c] Anx/Dep = Composite of Anxiety and Depression scales on the Brief Symptom Inventory. [d] Positive Parent = composite of two scales on the Alabama Parenting Questionnaire (APQ); Negative Parent = composite of three scales on the APQ. [e] SES is measured by dividing the level of reported income by the number of people reportedly living in the household.

not significantly related. Both SES and maternal stress was significantly related to the positive parenting composite. However, the factors for each endogenous variable explain only a small portion of the variance. The parenting composites explained 8.3% of the variance in parent-reported child attention problems. The Parent Domain of the PSI and the anxiety/depression composite together explained 11% of the variance in the positive parenting composite and 7.1% of the variance in the negative parenting composite. See Figure 5 for the unstandardized and standardized path estimates.

Similar to the results for child hyperactivity and aggression, a post-hoc alternative model was run on the parent-reported child attention problems sample. This model also hypothesized a partial mediating role of parenting techniques on the relation between maternal distress and stress and child attention problems. As noted earlier, direct relations have been found between maternal stress and distress and child attention problems and diagnoses of ADHD; therefore, parenting techniques may not fully mediate the relation between maternal distress and stress and child attention problems but rather partially mediate this relation. See Figure 6 for a graphical representation of this model.

The alternative model demonstrated better fit than the original model. The chi-square statistic was significant, $\chi^2(1) = 2.96$, $p > .05$, indicating that the reproduced matrix did not fit the original covariance matrix well. The SRMR (.03) indicated adequate fit for simple model specification. The CFI (1.00) and the RMSEA (0.0, 90% confidence interval .00-.14) demonstrated appropriate complex model specification. Unstandardized paths were not different for both the theoretical and alternative model,

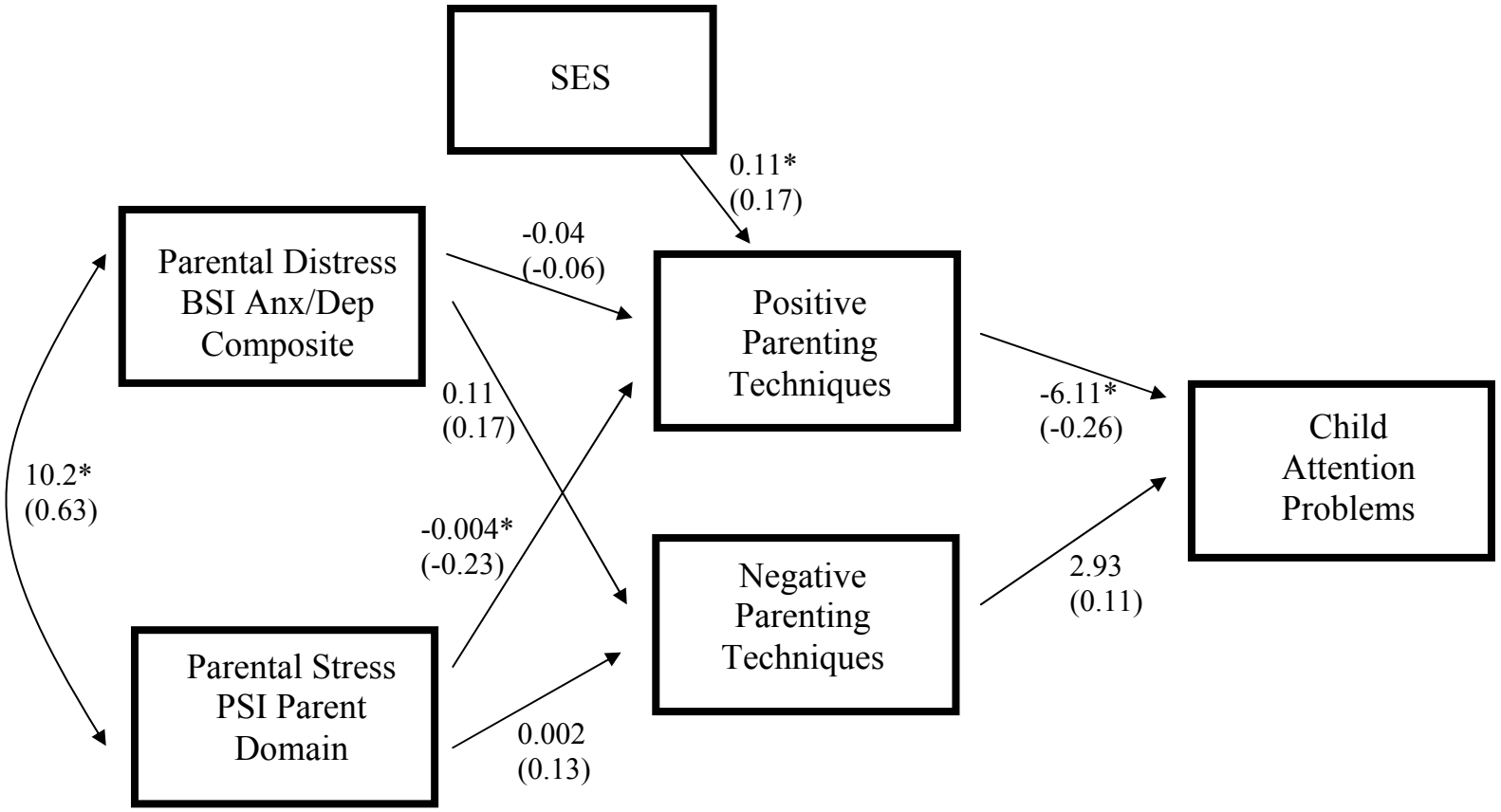

Figure 5. Mediation of parenting techniques on the relation between parent characteristics and child attention problems. Standardized paths are reported in parentheses. * p<.05.

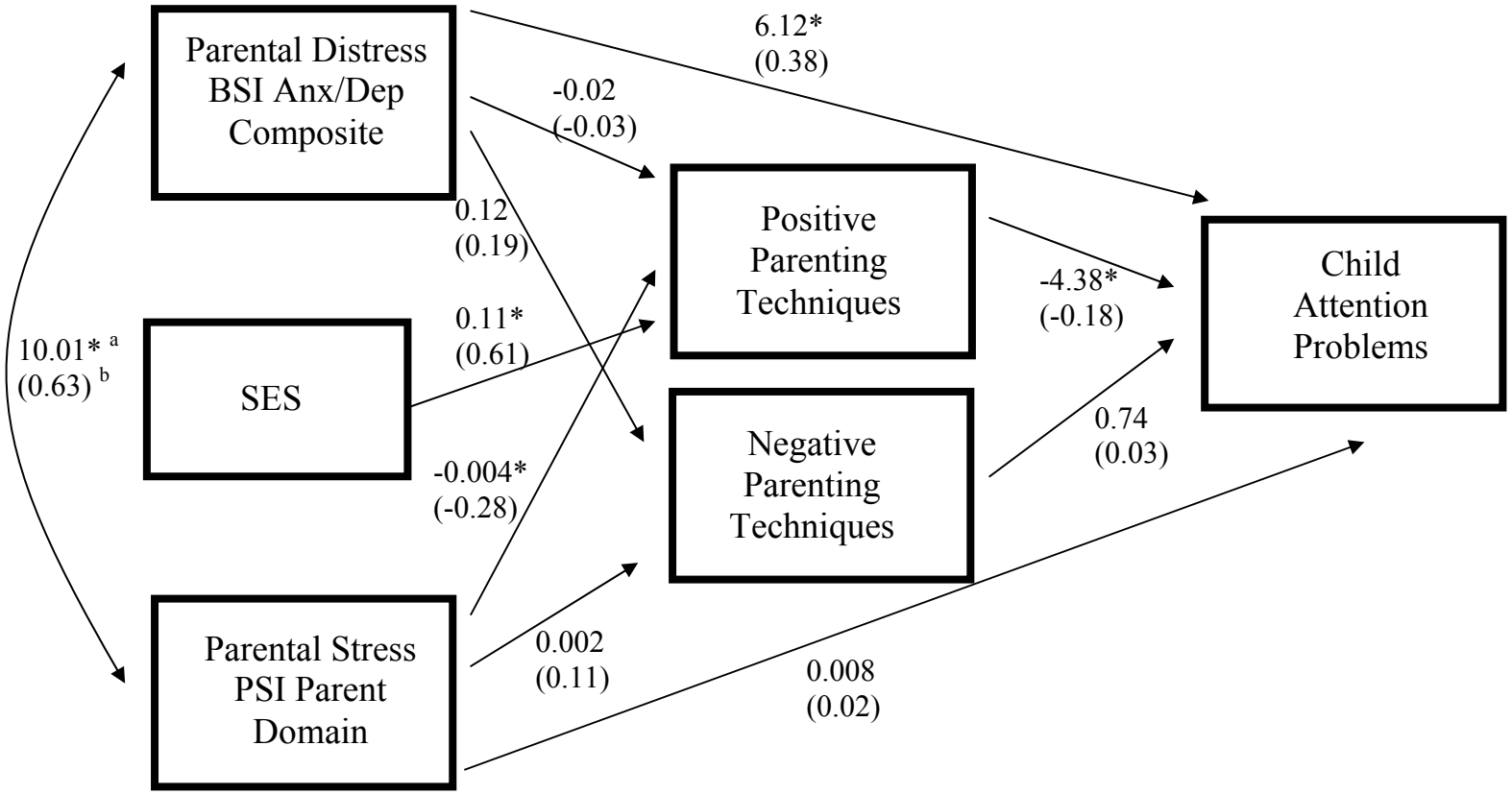

Figure 6. Partial mediation of parenting techniques on the relation between parent characteristics and child attention problems. Standardized paths are reported in parentheses. * p<.05.

and the addition of one path between maternal distress and child attention problems was also significant. The four predictors of child Hyperactivity explained 22% of the variance, an increase of 13.7% from the theoretical model. The same amount of variance was explained from both maternal stress and distress for the positive parenting composite (11%) and the negative parenting composite (7.1%).

The chi-square difference between these two nested models was 24.38 with two degrees of freedom. The *p*-value for this test was less than .001, indicating that the alternative model better describes the data.

SUMMARY AND CONCLUSIONS

This study considered the importance of maternal characteristics (e.g., maternal stress and distress) and parenting techniques (e.g., positive parenting, use of corporal punishment, poor parental monitoring, parental involvement, inconsistent discipline) on child behaviors, specifically aggression, hyperactivity, and attention problems. This study also examined if these relations were similar for teacher-reported child behaviors and parent-reported child behaviors.

Relation of Parenting Techniques and Child Behavior

The first hypothesis considered the importance of each parenting technique on each of the three child behaviors. One consistency across all parent-reported child behaviors was the significant relation with corporal punishment, such that the increased use of corporal punishment was significantly related to an increase in hyperactive and aggressive behaviors and attention problems, as reported by the parents. This finding supports previous research that has suggested that the use of harsh discipline has been linked to higher frequencies of ADHD, hyperactivity, and aggressive behaviors (Loeber, et al., 1998; McLoyd & Smith, 2002; Stormshak et al., 2002). Other parenting techniques considered in this study were found to relate differently to the different child behaviors. For parent-reported child hyperactivity, both parental involvement and inconsistent discipline were significant predictors. For parent-reported child aggression inconsistent discipline was a significant predictor; for parent-reported child attention problems, parental involvement was a significant predictor. These relations are also consistent with previous research (e.g., Deur & Parke, 1970; Loeber et al., 1998);

however, previous research findings also included other significant relations of child externalizing behaviors to other parenting practices such as poor monitoring and positive parenting that were not present in these results. This finding is also not consistent with current parent training models for problematic child behavior which target first the use of praise and positive attention coupled with monitoring a child's behavior for actions to praise (Barkley, 1997; Eyberg, 2003). One hypothesis for this difference with previous research is a possible measurement problem with the APQ in this preschool sample. Possibly, this measure does not tap into these constructs at the most developmentally appropriate level for preschoolers. For example, one item on the poor parental monitoring scale asks parents to rate how frequently their child fails to leave a note before leaving the house. This item is not developmentally appropriate for children in this study who may just be learning how to write. In addition, measurement related issues might also be present in the constructs. For example, the use of corporal punishment may be behaviorally easier to measure than other techniques, such as positive parenting.

Teacher-reported child behavior of hyperactivity and aggression were not, overall, significantly related to parent techniques. However, for teacher-reported child attention problems, parenting techniques, in particular parental involvement, explained a significant amount of unique variance above and beyond SES and gender.

Partial Mediating Role of Parenting Techniques on Child Behavior

Child Hyperactivity

Separate regression analyses were run to determine if both parental involvement and inconsistent discipline separately mediated the relation between maternal stress and maternal distress and parent-reported child hyperactivity. Two separate regressions determined that parental involvement did not contribute a significant amount of unique variance above and beyond both maternal stress and maternal distress, after controlling for SES and child gender. However, inconsistent discipline did partially mediate the relation between maternal distress and parent-reported child hyperactivity, as well as the relation between maternal stress and parent-reported child hyperactivity after controlling for child gender. While other parenting techniques may be significant predictors of child hyperactivity, inconsistent discipline appears to not only directly relate to child hyperactivity, but also influences the relation between both maternal stress and distress with child hyperactivity. This finding suggests that as a female caregiver's level of symptomatology and/or stress increases, one way to partially avoid impacting the child's hyperactivity as well would be to remain consistent in discipline practices.

Child Aggression

The results concerning the relations of the variables related to child aggression were similar to those reported for child hyperactivity. Inconsistent discipline was found to be a significant partial mediator between maternal distress and parent-reported child aggression and between maternal stress and child aggression. For both parent-reported child aggression and child hyperactivity, the relation between a parent's report of high

levels of anxious and depressive symptomatology and high levels of these child behaviors is in part, explained by the use of inconsistent discipline. These findings extend the results of Barry et al. (in press) which reported a partial mediating effect of inconsistent discipline on child aggression for school-aged children. This downward extension of these results is important for those professionals involved with early intervention and early prevention of behavior problems (e.g., families, teachers, other caregivers, therapists). Since previous research has suggested that early prevention is more beneficial for the reduction of behavior problems than when treating an adolescent (Dishion & Patterson, 1992; Lochman & Wells, 2003), these findings suggest that even as early as preschool, these variables seem to interact in a similar way to older children in elementary/middle school. Therefore, professionals working with preschoolers can begin interventions early when possible behavior problems are detected or when a female caregiver appears to be at a high risk for high levels of stress or more symptoms of depression and/or anxiety. When both risk factors are present (e.g., one maternal risk and child behavior risk), the focus of the intervention should be geared toward maintaining consistency in daily routines and in discipline practices.

Child Attention Problems

Parental involvement was found to explain significant, unique variance in parent-reported child attention problems, even after controlling for maternal stress or distress, and gender and SES. However, significant tests of the indirect effects suggest that parental involvement does not help to explain the relation between maternal distress or stress and child attention problems. While all three of the child behaviors in this study

are defined as externalizing behaviors, the results for parent-reported child attention problems were distinct from the other two child behaviors. In particular, parental involvement, not inconsistent discipline is the strongest predictor of child attention problems. These findings suggest that children presenting with problems with attention as their guardian's primary complaint, as opposed to hyperactivity and aggression, might benefit from initially increasing parental involvement and monitoring a maternal caregiver's self report or behaviors for high levels of maternal stress and distress.

Combined Mediational Models for Maternal Distress, Stress, Parenting Techniques, and Child Behavior

While the six different SEM models all had slightly different fit, consistently the partial mediating models for all child behaviors had significantly better overall fit than the full mediational models. However, the significance of the paths does not indicate a mediational or partial mediational model. For child hyperactivity and aggression, both the direct effects of maternal distress and negative parenting techniques on these two child behaviors were significant, indicating that as depressive/anxious symptoms and negative parenting techniques increase, child aggression and hyperactivity increase as well. The significance of the negative parenting techniques is congruent with results that suggest the importance of inconsistent discipline on these behaviors. However, a partially mediating model is not supported by these SEM analyses. Potentially the inclusion of both maternal stress and distress in the model, which are strongly correlated, share a significant amount of the variance in parenting techniques that, when combined in the same model, cancel the effects of the partial mediation and their unique effects on

child behavior and parenting techniques. One hypothesis for this finding is a measurement issue with the PSI. The Parent Domain scale of the PSI does include nine of 53 questions about depression which mainly tap into depression related to parenting. However, this overlap could significantly elevate the relation between maternal stress and distress. Future studies could consider creating a unique composite either not based on the PSI composites, but rather combined at the item level, or a new composite that eliminates the depression scale from the Parent Domain. These composites would eliminate these depression items and focus more on maternal stress related to other issues (e.g., parenting competence, health issues, and difficulty with spouse).

For parent-reported attention problems, the positive parenting techniques displayed a significant direct effect with child behavior, in addition to the direct effect of maternal distress. The significance of the positive parenting techniques is congruent with the earlier findings that parental involvement is a significant predictor of child attention problems above and beyond maternal distress or stress and gender and SES. However, the mediational effect of parenting techniques is not present in this SEM model.

Across all models several trends were present. First, a participant's per capita income was significantly related to positive parenting techniques. These findings suggest that as per capita income increases, the reported use of positive parenting techniques increases as well. While a participant's amount of income per person in the household does not cause different levels of positive parenting use, further exploration of additional related variables would be a direction of future research. Second, maternal stress was consistently related to positive parenting techniques, such that lower levels of stress are

related to more frequent use of positive parenting techniques. Last, maternal distress is directly related to the specific child behaviors. These findings suggest that when considering all relevant variables in the model, a female caregiver's level of anxious/depressive symptomatology has a more direct relation with child behavior, while maternal stress has a more direct relation with parenting techniques, especially the positive parenting composite of positive parenting and parental involvement. While the results of these SEM analyses do not indicate a causal relation, these results do suggest that when managing certain child behaviors it is important to conceptualize the role of maternal distress and its influence on behavior. When working through a parent training exercise with a parent, it is important to conceptualize their current stress for any significant stressor that may impede progress in therapy.

In addition, these models were a priori hypothesized to include all parenting techniques in two composites. SEM analyses may have yielded different, more specific results had each parenting technique been modeled separately. Lack of a large sample size prohibited those models from being tested; however, future research could focus on 1) cross validation and replication of the significant, partial mediators on a new sample and 2) the separate modeling of individual parenting techniques for a more detailed and informative model.

Implications for Clinical Practice and Classrooms

The results of this study support previous research and current recommendations in child therapy that suggest at least one level of intervention with children presenting with parent-reported behavior problems can be attempted by teaching the parents

behavior management training and parenting skills that have been demonstrated to decrease problematic behaviors. For example, Parent Child Interaction Therapy (Eyberg, 2003) and Russell Barkley's (1997) manual of treating defiant children suggest the incorporation of these parenting techniques, including parental involvement, positive parenting, consistent discipline, use of time out or privilege revocation in place of corporal punishment. The results from this study suggest that those parenting skills are significantly related to child behavior, with particular emphasis on corporal punishment, parental involvement, and inconsistent discipline. These programs focus first on increasing parental involvement, positive parenting, and some elements of consistency, and later these programs incorporate discipline techniques and rule consistency for behavior management. Early consistency in these programs could be described as maintaining a set "special play time" everyday for the caregiver and child that occurs no matter what else may occur over the course of the day. In these programs, the importance of the consistency in the beginning sessions for parents is not as strongly emphasized as are the positive aspects brought about by this parent child interaction time.

One consideration for clinical work, especially with sometimes high rates of early drop-out, may be to discuss sooner and more openly the importance of consistency in daily life. In particular, during the initial sessions of these treatment programs where rebuilding a positive relationship between the caregiver and the child without altering discipline practices is suggested, clinicians can also use that time to begin to teach parents the importance of consistency for children with behavior problems, especially

hyperactivity and aggression. In addition, reviewing a family's schedule outside of "special play time" may offer some less volatile incorporation of consistency. For example, planning a set time for dinner each night, always offering to help with homework at least once each night, checking off or reviewing the completion of homework each night, involving the children in helping to create a routine for each day after school, even having the child(ren) decorate a posted version of this schedule. This would still allow for a positive relation to continue forming before incorporating consistency into rule enforcement.

In addition, the results of this study suggest that maternal mental health is just as important as the child's mental health with regards to children being referred for services with high levels of parent-reported aggression, attention problems, and hyperactivity. Education about the relation of a caregiver's mental health on that of a child's mental health is important for parents to appreciate. Additional therapy referred for a caregiver may also help to decrease their own level of symptoms, thus impacting the child's behavior.

In addition to clinical implications, these results have important implications for Head Start centers who value the family model of support. For example, these findings could help a teacher guide families toward different parenting techniques that might help them at home. These findings do not support the generalizability of the relations between maternal stress, distress, parenting techniques and parent-reported child behaviors to child behavior in the classroom. However, these results do provide teachers with a better understanding of the impact of parent-related variables which, in turn, can impact how

they approach consulting with parents about changes the parents can make at home that will impact their child's behavior. For example, in Head Start programs, parents are encouraged and in some cases, required to volunteer in the classroom. Teachers who actively promote parents to attend classroom events and/or help out with classroom activities are increasing parental involvement which may, in turn, improve child behavior problems at home. Teachers can actively teach parents about the importance of this involvement and show them how to use those classroom experiences as a way to continue involvement at home through discussion of the positive things that the parent observed the child do throughout the time the parent was volunteering. In addition, during home visits, teachers can observe the inclusion of these parenting techniques and discuss with parents the importance of techniques the teacher observes or does not observe in the home. Also, the incorporation of a quick and easy to administer assessment for maternal distress would provide helpful information for teachers and home visitors to talk further with parents or make necessary referrals to local agencies.

Teachers are also encouraged to recommend parenting classes for parents who may be observed to demonstrate fewer positive parenting techniques and more negative parenting techniques. Other avenues that a teacher or center could pursue include establishing collaborations with mental health agencies, devoting some parent meetings to "parent topics," and distributing information through classroom newsletters. These inclusions of parenting information provide multiple avenues for parents to receive parenting information from teachers. An established relationship with a trusted teacher may impact the perceived importance of these ideas and possibility for change over a

new clinician or professional that a family may take some time to trust. This early intervention by the teacher not only at the child level in the classroom but also at the parent level could have significant impacts on the child's behavior and influence the overall family environment.

Strengths and Theoretical Implications

One strength of this study is the use of several sites for data collection. This multi-site approach incorporated several centers in two distinct parts of the country that sampled families from both small city and rural areas. This multi-site advantage allows for greater generalizability of results to other small city/rural areas that are typically understudied in current research. The use of multiple sites also resulted in a more ethnically diverse sample. Additional information about exploring ethnic differences is presented in Appendix A.

A second strength of this study is the use of a majority of well-studied and validated measures for assessing child behavior, maternal stress and distress. These measures have been well studied within the population, often including norms specific for younger children.

A final strength for this study is that the results build upon previous results, especially with regard to the mediating role of inconsistent discipline with child aggression. Since early intervention has been shown to be more beneficial to impacting behavior than addressing these issues in adolescence (Dishion & Patterson, 1992; Lochman & Wells, 2003), the downward extension of previous findings to preschool-aged children already at risk for future behavior problems allows for a better

understanding of how best to impact a child's behavior and family environment. In addition to elaborating on current findings, these results expand the partially mediating role of inconsistent discipline to child hyperactivity as well.

Limitations and Future Directions

Statistically, with regard to the SEM approach of evaluating the relation of these variables and adequacy of model fit, several researchers have criticized the use of Hu and Bentler's (1998) model fit evaluation method and cut-offs as golden rules for SEM research (Marsh, Hau, & Wen, 2004). Marsh et al. argued that even Hu and Bentler noted in their original publication that their recommendations were merely suggestions based upon Monte Carlo studies indicating the value of certain fit indices. Marsh et al. discussed the implications of using Hu and Bentler's recommendations as the standard for model fit and cautioned that this interpretation has led researchers to use questionable methods (e.g., use of smaller sample sizes) to obtain good fit based on these recommendations. This process obviously omits the true nature of SEM – to determine how multiple variables relate in the population – by manipulating the methods in which we assess those relations and basic methodological concerns (e.g., external validity). Several articles have suggested that Hu and Bentler's cut-offs are too stringent (Marsh et al.). As empirical research flushes out the most appropriate combination of fit indices to evaluate model fit and how those combinations might vary over the type of model being assessed, the models tested in this study should be re-tested to determine its more accurate fit.

In addition, the testing of alternative models in SEM warrants some discussion. The alternative models presented in these analyses were not strictly empirical alterations based on modification indices, but also incorporated theoretical logic based on previous research. Despite these considerations, any models tested post hoc should be cross-validated on a second, independent sample to determine if similar relations are found. In comparison to the current study, a larger sample size would also be beneficial for validating these models; future directions for this research could retest the partial mediating models on a new, larger sample. An additional, important model to consider would be a non-recursive model that considers direct effects of the parent behavior on the child which in turn directly impacts the parent's future behavior. Research has suggested that the relation between child and parent characteristics mutually influence the other. For example, maternal distress may be exacerbated by child noncompliance. These future models may help to extend these findings further by addressing causal influences, not considered in this study, of both child behavior/characteristics and parent behavior/characteristics on the parent-child interaction.

An additional limitation to this study is the use of all parent-reported information for some mediational analyses and all SEM models. By relying solely on the maternal caregiver as the rater of self and child behavior problems in the home, these results cannot rule out the possibility that some maternal caregivers may have responded in an overly critical manner or been influenced by the current daily behavior of the child. For example, the results of this study cannot rule out the possibility that female caregivers who have higher levels of stress and distress may have a different perception of the

severity of their child's behavior in comparison to a parent with less stress and distress. It is likely that this perception by the female caregiver is not perfectly correlated with the actual presence of more or less behavioral problems. Therefore, a parent with higher stress and/or distress may rate their child's behavior differently than a parent with less stress or distress, and this difference may not be reflective of actual behavior. A similar hypothesis could be drawn for the teacher-reported sample, such that the possibility of teacher stress, distress, or even classroom experience, although not measured in the current study, may bias the teacher's report of the severity of behavior problems. The use of behavioral observation data would be an important methodological consideration, as this would help provide an objective measure of a child's behavior by someone uninfluenced by the actual behavior and other variables under study. Behavioral observation, especially by multiple raters, could help to eliminate the possible response bias of a parent or teacher. In addition, future research could consider the creation of a composite or latent variable that could model both the maternal caregiver's report as well as another independent rater.

As noted in earlier sections, one limitation to this study may be the measurement of parenting techniques and maternal stress. In particular, future studies should consider if the APQ is a valid and reliable measure for caregivers of preschool-aged children. The possibility of item omission or rewording to be more developmentally appropriate for preschool children's behaviors should be considered in the future testing of this instrument. In addition, the retesting of these models with a different source of parenting stress would be helpful to decipher if the relations of maternal stress in the SEM models

were an accurate description of what happens in the population or if the influence of that variable was muted by the overlap with the BSI Anxiety/Depression composite. The possibility of altering the operational definition to be more concrete, such as major life stresses in the past 12 months or stress related specifically to parenting struggles may provide more specific information about the type of stress that most impacts the use of certain parenting techniques.

One final limitation concerns the low participation and recruitment rates from each of the three programs (e.g., College Station, Bryan, and Hattiesburg). Of the total possible participation for each program, only 12% of female caregivers in the Texas centers and slightly less than 9% of the female caregivers in the Mississippi centers participated. This low participation rate impacts the generalizability of these results to other female caregivers within these centers. However, one strength of this sample is the similarity of percentages of child ethnicity in this sample compared to the percentages of child ethnicity within the total enrollment at the Head Start programs. As described in the method section and Table 1, the overall sample, Texas Head Start program sample, and the Mississippi Head Start program sample included a majority of African American children, which is similar to the reported ethnicities of children in both the Mississippi and Texas centers. For the Texas centers, center directors reported between 22%-40% children of Hispanic/Latino/a ethnicity, which is higher than this current sample's percentage of parent-reported child ethnicity (18%). In addition, the Texas centers reported between 20%-24% children of Caucasian ethnicity, which is very similar to this study's overall sample's percentage (19%). These similarities suggest that while the

overall sample may be a small representation of the current population for these Head Start programs, the ethnic breakdown of this sample is a close representation of one important demographic characteristic of the population.

For more specific clinical implications, three additional considerations are warranted. First, these models should be validated using a clinical sample of both caregivers with high symptomatology and children with high symptomatology. A group comparison of caregivers with high levels of symptoms and children with low levels of symptoms, caregivers with low levels of symptoms and children with high levels of symptoms, and caregivers and children both with high levels or low levels of symptoms may provide a more detailed understanding of the relations of these variables. This may also impact treatment planning information for professionals who are meeting with, typically, at least one person in a family with reports of high psychopathology. Second, parental anxiety and depression were combined and conceptualized as parental distress on the basis that previous research considered the relation of maternal internalizing symptomatology with child externalizing behaviors. However, the impact of maternal anxiety and maternal depression may influence child externalizing behaviors differently. Therefore future research should consider if these two parental distress variables have a similar or different relation with the three child externalizing behaviors. If differences are found, then these differences may significantly impact the treatment planning and direction of therapy and recommended resources with parents with specific distress. Last, in addition to a clinical sample, an important future direction for this research should consider the multi-group modeling of these or other proposed SEM models by

gender. Since child gender was significantly related to child hyperactivity and attention problems, evaluating the similarities or differences of the overall model and individual relations between variables in the model would have important theoretical and clinical implications.

Last, since most of the current research on externalizing behavior problems has focused on urban populations, continual study of small city and rural populations will allow for a better understanding of differences between these culturally diverse areas. These future directions will help to better understand the impact that parents have on their child's behavior both through their choice of parenting techniques, as well as through their own levels of stress and distress. Further knowledge of the variables that impact the families of young children is essential to understanding children's social and academic success as well as their family and environmental surroundings.

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APPENDIX A

ROLE OF ETHNICITY AND CULTURAL DIFFERENCES IN PARENTING

Recently, researchers have begun to study ethnicity and the role of ethnic and cultural differences in parenting. To date, no studies have empirically determined if ethnicity or other cultural variables moderate or mediate the association between parenting, parent characteristics, and child behavior. However, several studies have considered parenting differences across ethnic groups. Results of these studies demonstrate inconsistent findings with regard to the presence of differences in parenting techniques for parents from different ethnic groups.

Some studies have indicated differences in the use of certain parenting techniques for various ethnic groups. Jambunathan, Burts, and Pierce (2000) compared empathic awareness, use of corporal punishment, and expectations for children across immigrant families from five different ethnic groups. Jambunathan and colleagues noted differences in empathic awareness of children's needs, role reversal (i.e., parent using the child to gratify his/her needs), appropriate expectations for their children, and the use of corporal punishment. Even when considering income level as a covariate, differences were still noted for nurturing, types of activities with the child, the amount of discipline used, especially corporal punishment, and the use of religious values to influence child's behavior (e.g., child's behavior "will make God sad," p. 362), but not for parental expectations (Cardona, et al., 2000).

In contrast to these studies, a majority of studies have concluded that no significant differences appear in parenting techniques across different cultures. In studies

of both fathers and mothers from Mexico and the United States, parents displayed similar scores on all three variables (i.e., expectancies, nurturing, and discipline), even after controlling for SES (Fox & Solís-Cámara, 1997; Solís-Cámara & Fox, 1995). Regardless of ethnicity, lower SES was significantly related to higher levels of paternal discipline and lower levels of nurturing. For mothers, age and child demographic variables both independently demonstrated differences in parenting techniques, and one interaction between child's age and ethnicity demonstrated differences in parenting. These findings support the theory of the existence of universal components of parenting. Julian, McKenry, and McKelvey (1994) noted more similarities than differences in parenting behaviors and involvement for Caucasian, African American, Hispanic, and Asian American families. Out of five sampled parenting behaviors, ethnic differences were found only for parent's use of praise and corporal punishment. Out of four activities related to parental involvement, only one, the amount of time the parent spends with reading and homework, differed by culture. Also, Forehand, Miller, Dutra, and Chance (1997) studied the differences in parental monitoring and communication in adolescent behavioral deviance. Using a large sample collected from three different sites, Forehand et al. found that monitoring, but not communication, significantly predicted deviant behavior in the adolescent, regardless of ethnicity as African American or Hispanic. Thus, the researchers concluded that higher parental monitoring of a child's activities (i.e., knowing where a child is, what he is doing, and with whom he is spending time) may lead to decreased deviant behaviors across cultures. This study not only supports the notion of the overall importance of specific parenting techniques

across ethnicities, but also demonstrates the importance of good parenting skills throughout a child's development, even into adolescence.

Much of the previous literature has focused on the differences in parent-reported use of techniques and parenting styles across different ethnicities. Few studies have compared these differences with respect to child behavior outcomes. Furthermore, studies that have compared different parenting techniques to child outcomes have yielded inconsistent findings. Similar to previous arguments, some studies suggest that poor monitoring, poor or harsh discipline, and poor family cohesion are related to delinquent or externalizing behaviors in children (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; McLoyd & Smith, 2002; Lequerica & Hermosa, 1995). However, other studies have noted that different relational patterns emerge for different ethnic or cultural groups (see below, Hill et al., 2003). One major reason for considering the relations of the variables is to help practitioners shape interventions for working with families from various cultures in addressing child behavior problems. For example, Solís-Cámara, Fox, and Nicholson (2000) compared the use of a parent training program for parents in the United States and parents in Mexico. Solís-Cámara et al. found that Mexican mothers displayed less nurturing and less discipline than mothers from the United States. However, United States and Mexican mothers did not differ on the developmental expectations for their children. In addition, their results suggested that the parent training group did successfully increase appropriate discipline, expectations, and nurturing behaviors for parents in both countries, which in turn decreased the number of child problem behaviors.

Several explanations have been offered for the inconsistencies in these findings. In addition to SES, several explanations for the inconsistencies of parenting differences across cultural groups have considered the heterogeneity of Hispanic or African American samples. Acculturation and immigration status, income, religiousness, and shared Latino or African American values may be important contributors to such variation (Hill, et al., 2003; Negy & Woods, 1992b; Kelley, Power, & Wimbush, 1992). A review of the literature on prevalence rates of behavior problems in preschool children from low-income families (Qi & Kaiser, 2003) suggested that parenting differences noted for different ethnic groups may be due to non-culturally sensitive measures of parenting. Different parenting values and styles associated with various cultures that may not be accurately measured by currently available measures. The following results consider the differences in self-reported parenting practices of maternal caregivers across three ethnicities.

Method

Participants

As noted above, participants in the parent-report sample included 152 female caregivers for children enrolled in Head Start facilities in parts of Texas and Mississippi. One participant in the original sample did not report her child's ethnicity. As can be reviewed in Table 1, 85 (56%) female caregivers reported their child to be of African American ethnicity, 30 (20%) reported Caucasian, 28 (18%) reported Hispanic, and nine (6%) reported "Other." Those who reported their child's ethnicity to be "Other" were removed from these analyses. The resulting sample size was 143 participants.

Measures

Demographic Questionnaire. As shown in Appendix B, the demographic questionnaire inquires about socio-economic and socio-cultural information about the family. This questionnaire addressed basic information about the caregiver(s), including age, gender, educational attainment, ethnicity, primary language spoken, employment status as well as household income. In addition, the demographic questionnaire asked information about the child, including birth date, gender, and ethnicity.

Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton, Frick, & Wootton, 1996). The APQ is a 42-item measure that requires caregivers to respond on a 5-point Likert scale ranging from 1 (Never) to 5 (Always), about the frequency of use of various parenting techniques. The measure yields five parenting scales, all shown to be important variables in child outcomes: Parental Involvement, Positive Parenting, Poor Parental Monitoring, Inconsistent Discipline, and Corporal Punishment. See Appendix C for the specific items in this measure. The APQ has demonstrated good construct validity (Shelton et al., 1996). It has also been found to be reliable, with adequate internal consistency (alphas ranging from .67 to .80, except Corporal Punishment, .46) and adequate test-retest reliability (ranging from .66 to .89; Shelton et al., 1996). The Spanish version of the APQ also has demonstrated appropriate psychometric properties. (Davis, & Domenech Rodríguez, 2005; Domenech Rodríguez, Davis, & Villatoro, 2005; M. Domenech Rodríguez, personal communication, June 6, 2005).

Procedure

The procedure was identical to that reported in the body of this dissertation.

Design

Five one-way ANOVAs were run to determine if parenting techniques differed significantly across ethnicity. The dependent variables were each of the five parenting techniques (parental involvement, use of corporal punishment, poor parental monitoring, inconsistent discipline, and positive parenting). The independent variable was ethnicity (e.g., African American, Hispanic/Latino, and Caucasian). Post hoc comparisons compared the means of the three ethnicities, if overall significant differences were found.

Results

Means and standard deviations are presented in Table A1.

A one-way ANOVA was run with poor parental monitoring as the dependent variable and ethnicity as the independent variable. The Levene statistic of homogeneity of variance concluded that the variances were not equal across the three groups, p = .001, an assumption of the ANOVA statistic. Therefore, further interpretation of the results was not considered.

A one-way ANOVA was run with parental involvement as the dependent variable and ethnicity as the independent variable. The Levene test was not significant, indicating no significant differences between the variances of the three groups. The ANOVA was not statistic, $F(2, 140) = .96$, n.s., indicating that there is no significant difference in the reported use of parental involvement for the three ethnic groups.

A one-way ANOVA was conducted with positive parenting as the dependent variable and ethnicity as the independent variable. The Levene test of homogeneity of

Table A1
Means and Standard Deviations of Parenting Techniques for Each Ethnic Group

	African American	Hispanic/Latino	Caucasian
Parental Involvement	3.91 (.50)	4.03 (.60)	4.04 (.48)
Positive Parenting	4.61 (.40)	4.58 (.44)	4.47 (.47)
Poor Parental Monitoring	1.47 (.48)	1.65 (.58)	1.25 (.28)
Inconsistent Discipline	2.24 (.62)	2.19 (.54)	2.23 (.69)
Corporal Punishment	1.98 (.66)	1.70 (.64)	1.81(.55)

Note: Standard deviations are presented in parentheses.

variance was not significant, and the ANOVA was not significant, F(2, 140) = 1.33, n.s. This result indicates that the reported use of positive parenting does not differ by ethnicity.

A one-way ANOVA was run with inconsistent discipline as the dependent variable and ethnicity as the independent variable. The Levene test was not significant, indicating no significant differences between the variances of the three groups. The ANOVA was not statistic, $F(2, 140) = .07$, n.s., indicating that there is no significant difference in the reported use of inconsistent discipline for the three ethnic groups.

A one-way ANOVA was conducted with corporal punishment as the dependent variable and ethnicity as the independent variable. The Levene test of homogeneity of variance was not significant, and the ANOVA was not significant, F(2, 140) = 2.32, n.s. This result indicates that the reported use of corporal punishment does not differ by ethnicity.

Discussion

For each parenting technique, with the exception of poor parental monitoring, significant differences in the use of certain parenting techniques were not detected. The analysis involving poor parental monitoring violated the equal variances assumption of ANOVA, and therefore was not considered further for group differences. While empirical data has varied, the majority of more recent research studies have not found many significant differences in parenting techniques across ethnicity (e.g., Fox & Solís-Cámara, 1997; Solís-Cámara & Fox, 1995). These results support those findings.

Alternative explanations for these results include limited variability on the five constructs. As can be seen from Table A1, female caregivers tended to rate a lower frequency of the negative parenting techniques and higher frequency of the positive parenting techniques. Scores only varied from the mean score by $\pm$ .69. The lack of significant differences for the three ethnic groups may be due to a lack of variability in the self-reported use of parenting techniques.

As reported previously, psychometric concerns with using the APQ in a preschool sample may have influenced the results of this study. One potential confound is that the constructs measured by the APQ are not developmentally appropriate nor possibly tapping into the same construct for a parent of a preschooler. Future studies will consider the psychometric properties of the APQ for use with this population.

In addition, as supported by the literature, differences may not have been confounded by other relevant variables that were not measured for these analyses. For example, acculturation and/or immigrant status was not considered for these analyses. These two variables, especially acculturation, may be less varied in a population who has successful sought early intervention services for their child, although further empirical testing is warranted.

APPENDIX B

DEMOGRAPHIC INFORMATION

What is your relationship to the child (please circle):

mother

father

grandmother

grandfather

other (please describe): _____

Information about the child in Head Start:

1. Child's birthdate (month, day, year): _____
2. Child's gender (please circle): male female
3. Child's ethnicity (please circle):

   African American Caucasian Hispanic/Latino Other (please indicate): _____
4. Have you ever sought psychological services for you or your child? (please circle): Yes No
   a. If yes, for what concerns did you seek services?

      _____

      _____

      _____

      _____

      _____

Information about your family:

5. Please circle your total household yearly income:

Less than $4,999	$25,000 – $29,999
$5,000 - $9,999	$30,000 – $34,999
$10,000 – $14,999	$35, 000 – $39,999
$15,000 – $19,999	$40, 000 – $44,999
$20,000 – $24,999	$45, 000 or more

6. What language is most frequently spoken at home? (please circle):

   English

   Spanish

   Other (please describe): _____

7. Are other languages spoken in the household? (please circle): Yes No

   If so, what other languages are spoken?

   _____

8. Have you always lived in the United States? (please circle): Yes No

   If not, in what country or countries have you previous lived?

   _____
   __

9. Mother/female guardian: Number of years of school completed:

   Less than 7 years
   Completed middle school
   Partial high school
   High school graduate
   Vocational training after high school
   Partial college education
   College/University degree (Bachelors)
   Graduate degree (Masters, Doctorate)

10. Father/male guardian: Number of years of school completed (if single parent, leave blank):

    Less than 7 years
    Completed middle school
    Partial high school
    High school graduate
    Vocational training after high school
    Partial college education
    College/University degree (Bachelors)
    Graduate degree (Masters, Doctorate)

11. Are you currently (please circle):

Single Married Divorced

Who lives with you?

Fill in the table below with all people who currently live with you. Please use the first row to fill out information about yourself. Then, list other people who live in your home (for example: your parents, other children, your husband or wife). Use the next page if necessary.

Relation to you (spouse, children, other family members)	**Age**	**Gender** (please circle)	**Ethnicity** (please circle)	**Occupation** (if not working, write "unemployed")
Me (person filling out form)		**M F**	Caucasian African American Hispanic/Latino/a Other: _____	
		M F	Caucasian African American Hispanic/Latino/a Other: _____	
		M F	Caucasian African American Hispanic/Latino/a Other: _____	
**Note: Table shortened for length. Participants were given up to ten spaces on the table for people currently living in their household.				

APPENDIX C

ALABAMA PARENTING QUESTIONNAIRE: SCALE COMPOSITION

Involvement

1. You have a friendly talk with your child.
4. You volunteer to help with special activities that your child is involved in (e.g. Sports, Boy/ Girl Scouts, church youth groups).
7. You play fun games with your child or do other fun things with your child.
9. You ask you child about his or her day in school.
11. You help your child with his or her homework.
14. You ask your child what his or her plans are for the coming day.
15. You drive your car to a special activity.
20. You talk to your child about his or her friends.
23. Your child helps plan family activities.
26. You attend PTA meetings, parent teacher conferences, or other meetings at your child's school.

Positive Parenting

2. You let your child know when he or she is doing a good job with something.
5. You reward or give something extra to your child for obeying you or behaving well.
13. You compliment your child when he or she does something well.
16. You praise your child if he or she behaves well.
18. You hug or kiss your child when he or she has done something well.
27. You tell your child that you like it when he or she helps out around the house.

Poor Monitoring/ Supervision

6. Your child fails to leave a note or to let you know where he or she is going.
10. Your child stays out in the evening past the time he or she is supposed to be home.
17. Your child is out with friends you do not know.
19. Your child goes out without a set time to be home.
21. Your child is out after dark without an adult with him or her.
24. You get so busy you forget where your child is and what he or she is doing.
28. You don't check when your child comes home from school when he or she is supposed to.
29. You don't tell your child where you are going.
30. Your child comes home from school more than an hour past the time you expect him or her to.
32. Your child is at home without adult supervision.

Inconsistent Discipline

3. You threatened to punish your child and them do not actually punish him or her.
8. Your child talks you out of being punished after he or she has done something wrong.
12. You feel that getting your child to obey you is more trouble than it's worth.
22. You let your child out of punishment early (e.g. lift restrictions earlier than you originally said.)
25. Your child is not punished when he or she has done something wrong.
31. The punishment you give your child depends on your mood.

Corporal Punishment

33. You spank your child with your hand when he or she has done something wrong.
35. You slap your child when he or she has done something wrong.
38. You hit your child with a belt, switch, or other object when he or she has done something wrong.

Other Discipline Practices

34. You ignore your child when he or she is misbehaving.
36. You take away privileges or money from your child as a punishment.
37. You send your child to his or her room as a punishment.
39. You yell or scream at your child when he or she has done something wrong.
40. You calmly explain to your child why his behavior is wrong when he or she misbehaves.
41. You use time out (make him or her sit or stand in corner) as a punishment.
42. You give your child extra chores as a punishment.

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